JULY 1956

FIREMEN

SIXTY-FIRST YEAR • NATIONAL FIRE PROTECTION ASSOCIATION

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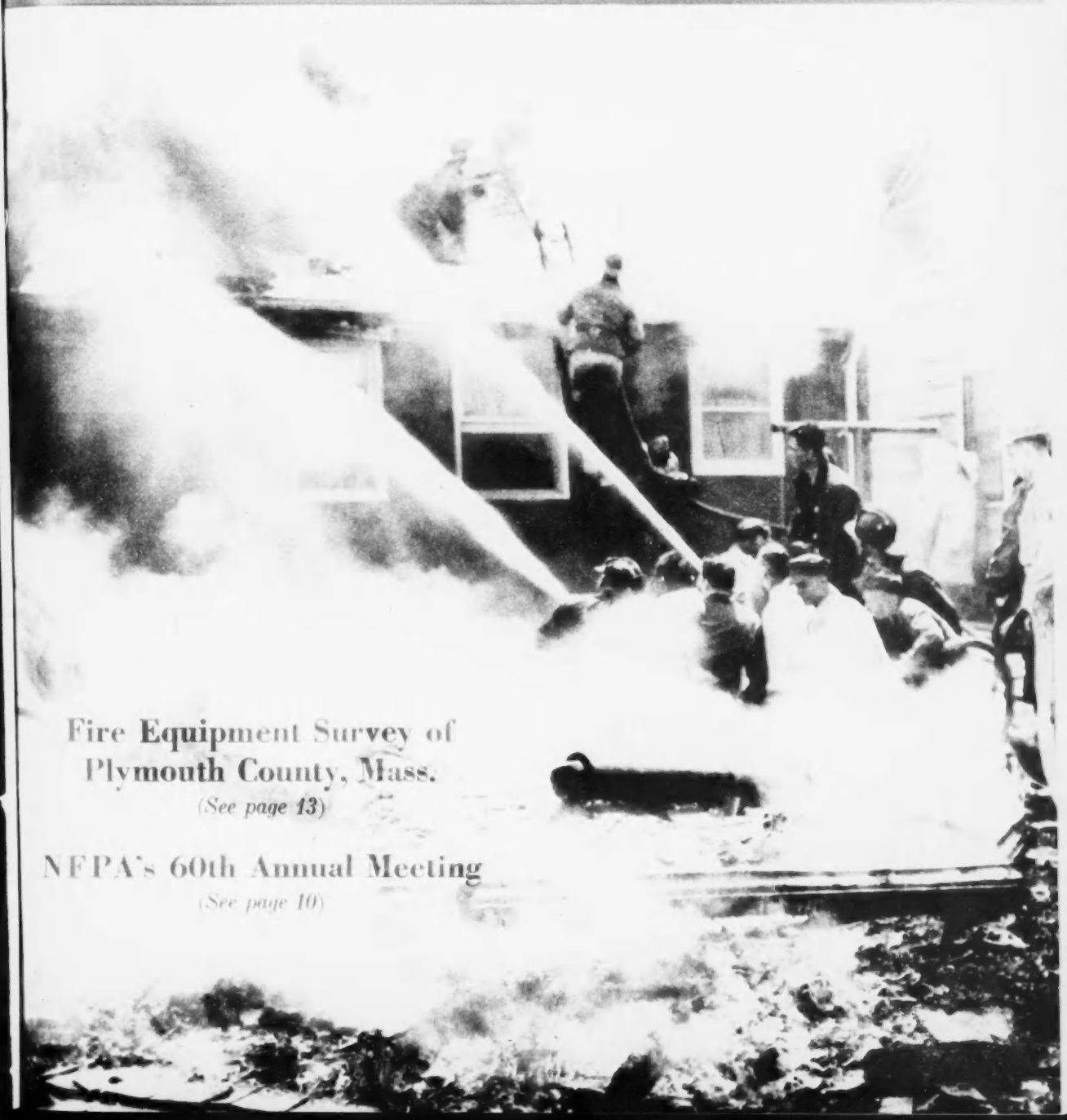

Fire Equipment Survey of Plymouth County, Mass.

(See page 13)

NFPA's 60th Annual Meeting

(See page 10)

This dramatic report . . . in Chief Owen's own words . . . reveals why Fire Chiefs who have had experience with Audio Hailer, ***urge other*** Dept's to adopt them. With Hailer, you can ***"make yourself HEARD"*** . . . project your voice to individuals or groups . . . with the power and authority to cut through the racket. Audio Hailer is the ***ONLY*** electronic megaphone that contains a genuine vacuum-tube amplifier. It operates on self-contained, dry batteries—weighs only 5½ lbs.—yet amplifies speech 1000 times! Let Hailer speak for itself:—for full details, or field demonstration, use convenient coupon below.

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Elwin S. Owens

Background photos of Strathcona Hotel disaster, courtesy of Nelson Fire Dept.

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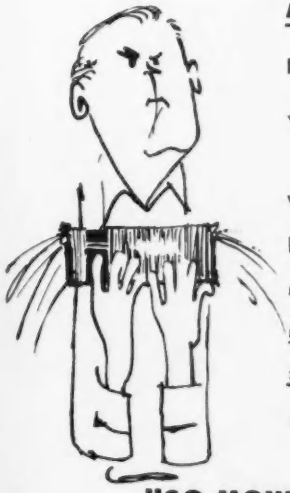

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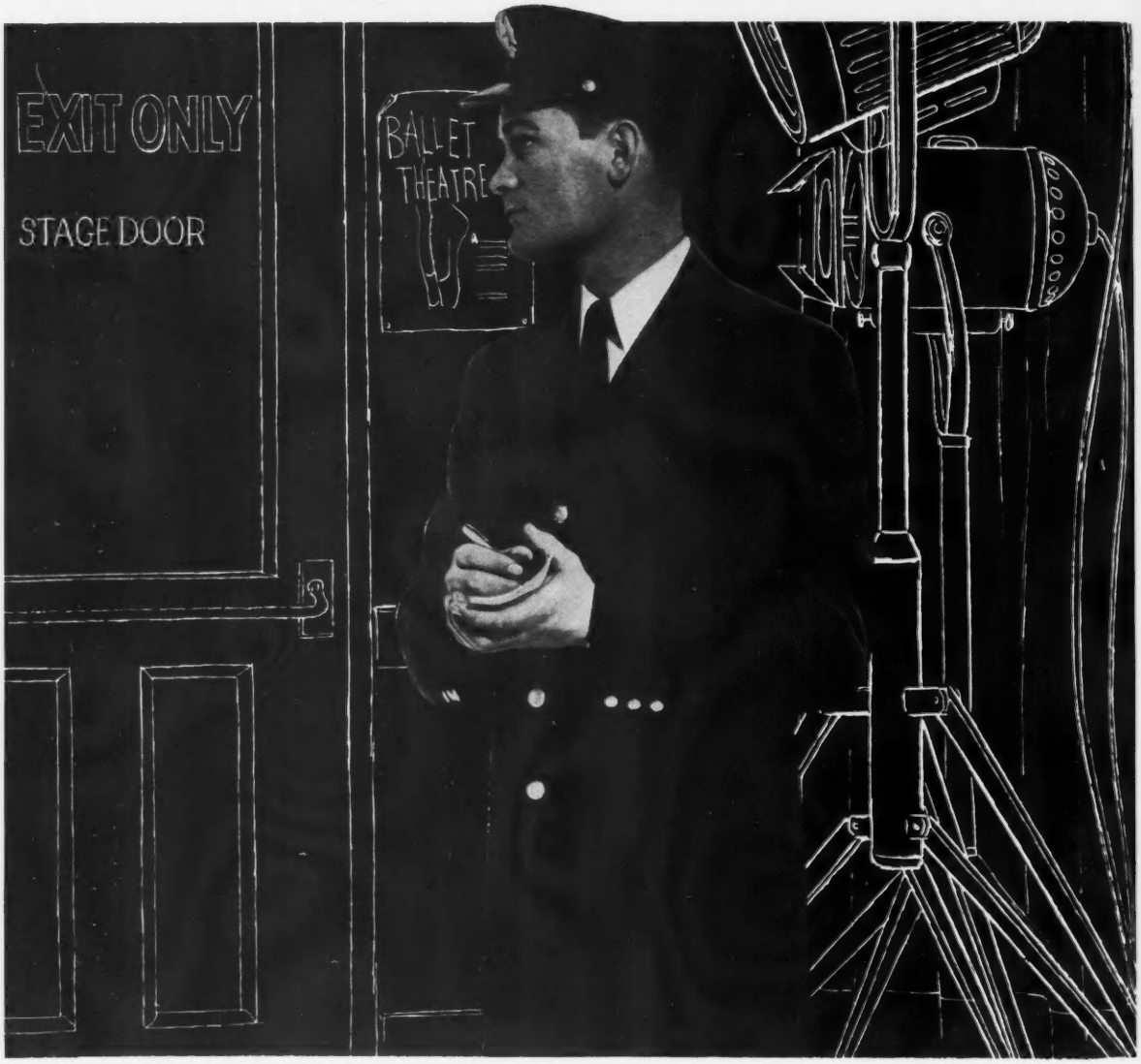

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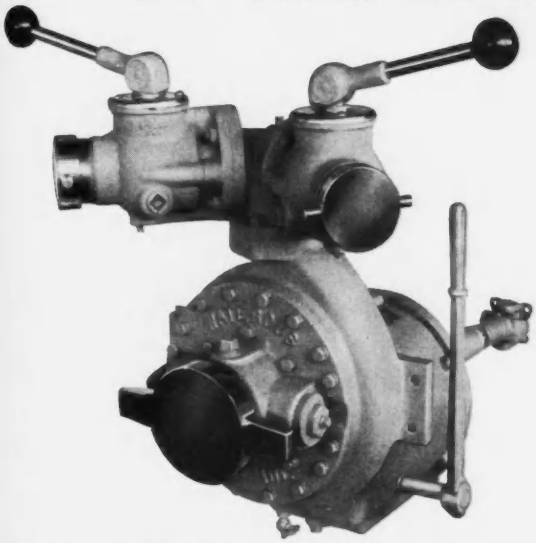

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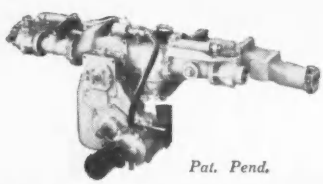

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Electro-Matic 2-stage, centrifugal, fire pump, 500 GPM, Class A. 500, 750 and 1000 GPM capacities available in 2 and 3-stage models.

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Firemen

Volume 23 — Number 7

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PAUL R. LYONS, ASSOCIATE EDITOR
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Published monthly for the fire service members of the
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A VOLUNTARY NON-PROFIT ORGANIZATION
60 BATTERYMARCH ST., BOSTON 10, MASS.

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Watch for the next NFPA Meeting

Some of the highlights of the just completed 60th Annual Meeting of NFPA are shown on pages 10 to 12 of this issue. Fire chiefs and other fire service members from many of the United States and the Provinces of Canada attended and devoted particular attention to the Fifth General Session on Thursday, June 7, which covered many aspects and problems of municipal fire protection.

One of the featured addresses of that session was by Chief William F. Fitzgerald, of the Seattle, Washington Fire Department, President of the International Association of Fire Chiefs. (See pages 24 and 25.) NFPA annual and regional meetings are planned to promote such exchange of ideas and viewpoints of the Association's members, which include fire department personnel.

The next regional meeting of NFPA is scheduled to be held in the Hotel Statler, St. Louis, Missouri, November 26–28, 1956. Watch for further announcements in FIREMEN. Then, make it a point to attend, to gain a better understanding of what such exchange of information means to the fire service.

Cover Picture

Following each sudden tragedy of the type illustrated in this month's cover photo, a wave of public resentment is heard aimed to force abandonment of the joint usage of civil airfields by military units. This accident in Minneapolis on June 9, 1956 resulted from an attempted emergency landing by a Navy jet trainer which experienced trouble in flight soon after take-off. The aircraft crashed into a row of houses about 1,000 feet short of the runway after first hitting a power line. Seven persons were killed including the pilot, a family of four in the house most directly hit, and two children in neighboring homes. In addition, five other children were seriously burned. The accident occurred at 9:30 A.M. on a Saturday morning. Fire control was rapid and effective.

The Minneapolis Fire Department (headed by Chief Reynold C. Malmquist) had two airport crash trucks on the scene in seconds as these units were on "standby" for the emergency landing. They were backed up by two Air Force crash trucks, a pumper from Fort Snelling, 8 MFD engine companies, a rescue company and 3 ladder companies. All fires in the four dwellings were out within minutes, but, of course, the worst of the tragedy, six of the seven deaths had occurred before any help was possible. (*See article on page 26 — Ed.*)

While the clamor rises to close Wold Chamberlain Airport to military flights, especially to training exercises, forgotten is the fact that the houses involved all were built about five years ago on land that literally juts into the southeast corner of the airfield just off one of the main runways. The 1952 Report of the President's Airport Commission asked for effective zoning laws and cleared runway extension areas to avoid just such tragedies as this. The cleared runway extension recommended is at least one-half mile in length at each end and 1,000 feet wide to be free of housing and any other form of obstruction. The President's Commission also asks for a fan-shaped zone beyond the half-mile cleared extension which would be at least two miles long and 6,000 feet wide at its outer limits in which area the use of the land should prohibit erection of places of public assembly, churches, hospitals, schools, etc., and residences restricted "to the more distant locations within the zone."

Readers of FIREMEN would do well to emphasize the lessons of this accident to their town officials and encourage practical zoning ordinances to reduce the possibility of such accidents in the future. America needs airpower. Our Naval and Air Reserve training units are essential to our preparedness. Airport fire departments can do much to limit the loss of life in aircraft accidents but they need the help of practical zoning ordinances in surrounding municipalities. (*Cover picture Wide World Photo*).

HIGHLIGHTS OF THE 60 FPA

The 60th year of NFPA activities was completed social eve with a diversified Annual Meeting at the Hote ers, 32 r Statler, Boston, Massachusetts, June 4–8. A tota and a va of 1,334 members and guests registered to highlights take part in the technical sessions and colorfu Photo Ser

On Friday afternoon after the closing session, hundreds of NFPA members and guests were transported to the laboratories of Factory Mutual Engineering Division in Norwood. This fire was one of the many demonstrations and tests conducted for the visitors.

Featured speaker at the banquet was Dr. James R. Killian, Jr., President, Massachusetts Institute of Technology, who described educational changes in engineering.

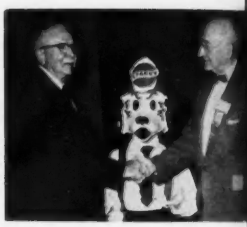
Christian A. Herter, Governor of Massachusetts, gave his official welcome to NFPA members during the First General Session on Tuesday morning.

Richard E. Vernor, Mgr., Fire Prevention Department, Western Actuarial Bureau, and Chairman, NFPA Board of Directors, presided over the Third General Session.

The original painting for next year's official "Sparky" cale was presented to General Manager Percy Bugbee. (L *right)* Azro G. Maxham, representing the Osborne Compa Cincinnati, Ohio, which produces the calendar, Percy Bu and retiring NFPA President T. Seddon Duke, President, Sprinkler Corporation, Philadelphia, Pennsylvania.

A panel on "Reactive Chemicals in Industrial Operations" included *(left to right)* Walter W. Baker, William H. Doyle, Matthew M. Braidech, Allen L. Cobb, Assistant Chief Raymond M. Hill, Los Angeles Fire Department, and NFPA Chief Engineer Horatio Bond.

Vice President of NFPA for next year is Chief Henry G. Thomas of the Hartford, Connecticut Fire Department.



Retiring NFPA President T. Se Duke congratulates his succ John A. Neale, Chief Engineer, tional Board of Fire Underw

(Left) More than 350 persons enjoyed the Anniversary Banquet on Wednesday evening. NFPA General Manager Percy Bugbee was toastmaster. Head table included business and industrial leaders who serve as sponsors of NFPA, other officers of the association, and Dr. James R. Killian, Jr., featured speaker.

FPA ANNUAL MEETING

social events. The program included 42 speakers, 32 reports of NFPA technical committees, and a variety of social events. Some of the highlights are shown here. (*Photos by Atlantic Photo Service.*)

Portion of the crowd attending the Electrical Section on Monday morning. Merwin M. Brandon, Vice President, Underwriters' Laboratories, Inc., presided as Chairman and was assisted by Secretary Charles L. Smith, NFPA Electrical Field Service Engineer.

Aviation Seminar brought active participation from a large ence. Featured speakers are shown with Jerome Lederer, rman of the NFPA Aviation Committee. They include (*left* ght) I. Irving Pinkel, A. R. Ogston, Mr. Lederer, Otto E. ner, Sr., and A. Howard Hasbrook. Reports of the NFPA tion Committee were presented during the Seminar.

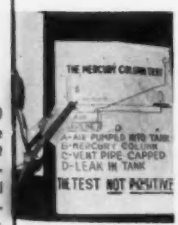
Adoption of the important Building Exits Code resulted after lively discussion during the Final General Session on Friday morning. A portion of the crowd which packed the Georgian Room is shown in the above picture.

NFPA Vice President for year is Loren S. Bush, Chief neer, Board of Fire Underers of the Pacific.

The Fifth General Session featured Chief William F. Fitzgerald, Seattle, Washington Fire Department and President, International Association of Fire Chiefs.

(See pages 24 and 25.)

Reporting on committee actions during the Third General Session on Flammable Liquids and Gases were (*left to right*) J. S. Queener, E. F. Tabisz, T. H. Wright and Charles H. Bunn, Jr.



g the Fire Marshals' on on Monday after- Ohio State Fire Mar- Charles R. Scott dis- d methods of deter- g leakage from un- ground tanks.

The program included three speakers from Great Britain, one of whom was N. C. Strother-Smith, L. I. Fire E., and Director F.O.C. Fire Protection Association, London, England.

(**Below**) One of the enjoyable social events of the Annual Meeting was the popular "Get-Together Party" on Monday evening. Members and their families also took part in pleasant historical tours, a tea at the Gardner Museum and a buffet luncheon.

More Highlights of the 60th NFPA Annual Meeting

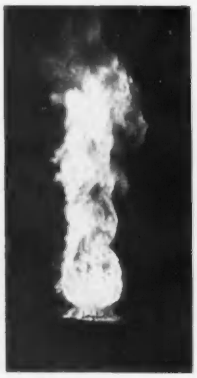
Fire Commissioner Frank L. McNamee, of Philadelphia, Pa., extends greetings to Boston's Fire Commissioner Francis X. Cotter. Both were featured on the program of the Fifth General Session and discussed operational and administrative problems of their respective fire departments.

Chief Henry G. Thomas of Hartford, Conn., opened the Fifth General Session by reading a special proclamation on "Firemen's Memorial Sunday." Joining him for the ceremony were (*left to right*): Assistant Chief Raymond M. Hill and Chief William L. Miller, Los Angeles, Calif., Fire Dept.; Chief Keith Klinger, Los Angeles County Fire Dept.; Edward N. Montgomery, newly appointed Chief of the Boston, Mass., Fire Dept.; Chief Thomas; Chief William F. Fitzgerald, Seattle, Wash., Fire Dept., President, IAFC; and John C. Kabachus, Vice President, International Assn. of Fire Fighters.

(*Left*) Boston fire fighters demonstrated one of the new steel aerial ladder trucks recently acquired by the city (see FIREMEN for June, 1956) and one of the new squad units placed in service last year (see FIREMEN for January, 1955). Here is a portion of the crowd which visited the demonstration.

Shown examining an animated, "talking" figure of Sparky are Assistant Chief Leslie A. Dutton and Chief Keith Klinger of the Los Angeles County Fire Dept. and Ira D. Keiter, Western Turnpike Fire Prevention Committee, Albany, N. Y.

Demonstrations at Factory Mutuals' Laboratories



Other demonstrations conducted at the Laboratories in Norwood included (*left*) operation of the nozzle designed by John R. Freeman during the last century. It produced 2,500 gpm with 75 pounds nozzle pressure. (*Center*) One of the flammable liquids tank fires which were extinguished during the "open house." (*Right*) Another of the test fires was this one produced by ignition of only 15 gals. of gasoline within the fire test building.

Chief "Bev" R. Wade, of Kentville, Nova Scotia, received the Grand Award for last year's NFPA Fire Prevention Week Contest (see FIREMEN for February, 1956). At right is NFPA General Manager, Percy Bugbee.

Fire Equipment Survey of Plymouth County, Massachusetts

Conducted by NFPA Fire Services Department, April-May, 1956

THE NFPA Fire Services Department in cooperation with the NFPA-IAFC Committee on Fire Department Equipment is interested in the development of practical standards for fire department apparatus and equipment. These are published in NFPA Standard No. 19 "Specifications for Motor Fire Apparatus." The Committee develops recommendations for these standards which are acted upon by the National Fire Protection Association. It is a representative group including fire chiefs, fire underwriters and rating organizations, and fire equipment manufacturers.

In the preparation of such standards, it is extremely important to consider the point of view and problems of the users of equipment. Numerous studies have been made of fire equipment in various individual fire departments. Recently, however, it was considered desirable to have an "across-the-board" study of a typical area, comprising a group of organized fire departments of different types, so that the needs and thinking of various departments could be considered in the developing of the most helpful and practical standards.

For this purpose, a special study has been conducted of Plymouth County in eastern Massachusetts. This County was selected because of its convenient location to the NFPA Executive Office, and because its 29 organized fire departments represent, substantially, all types of fire department organization from full-paid city fire departments to rural volunteer fire district companies. The County also includes large-area communities and very small, congested communities, and a considerable variety of fire department equipment.

This report contains a listing and analysis of fire equipment in service in the various fire departments, the maintenance practices and problems, and a study of the procurement of new apparatus including the types of specifications that are used. We have attempted to reflect the point of view of the local fire chiefs and the municipal officials concerned, and to show how various types of apparatus have been developed to meet local requirements.

While the full, voluminous reports obtained on each individual fire department cannot be published, a summary is here presented for the information of our readers. Detailed information will be available to members of the Committee on Fire Department Equipment, to guide them in developing new formats for equipment specifications to make the specifications of greater use to the purchasers of equipment. The study attempted to find out what the fire chiefs like and dislike about various pieces of motor fire apparatus, what factors chiefly influence their selection of apparatus, what pieces of apparatus they depend upon and use most frequently, what pieces are mainly considered for reserve use, and what changes they would make in any future procurement based upon their experience.

Related matters studied in the survey were: the actual vehicle loads of apparatus loaded for service, as contrasted with weight and distribution allowances generally followed in the manufacturing of apparatus, and also the horsepower and weight ratios of the vehicles as they are equipped ready to roll to fires.

The response and cooperation of the various fire chiefs were excellent. They were very frank and cooperative in giving their ideas relative to their equipment, and in pointing out maintenance, service, and procurement problems that confronted them. Many of these matters will be treated in individual articles in future issues of FIREMEN magazine.

The survey required over two months of detailed work in the County by Engineer Donald O. Johnston working for the NFPA Fire Services Department.

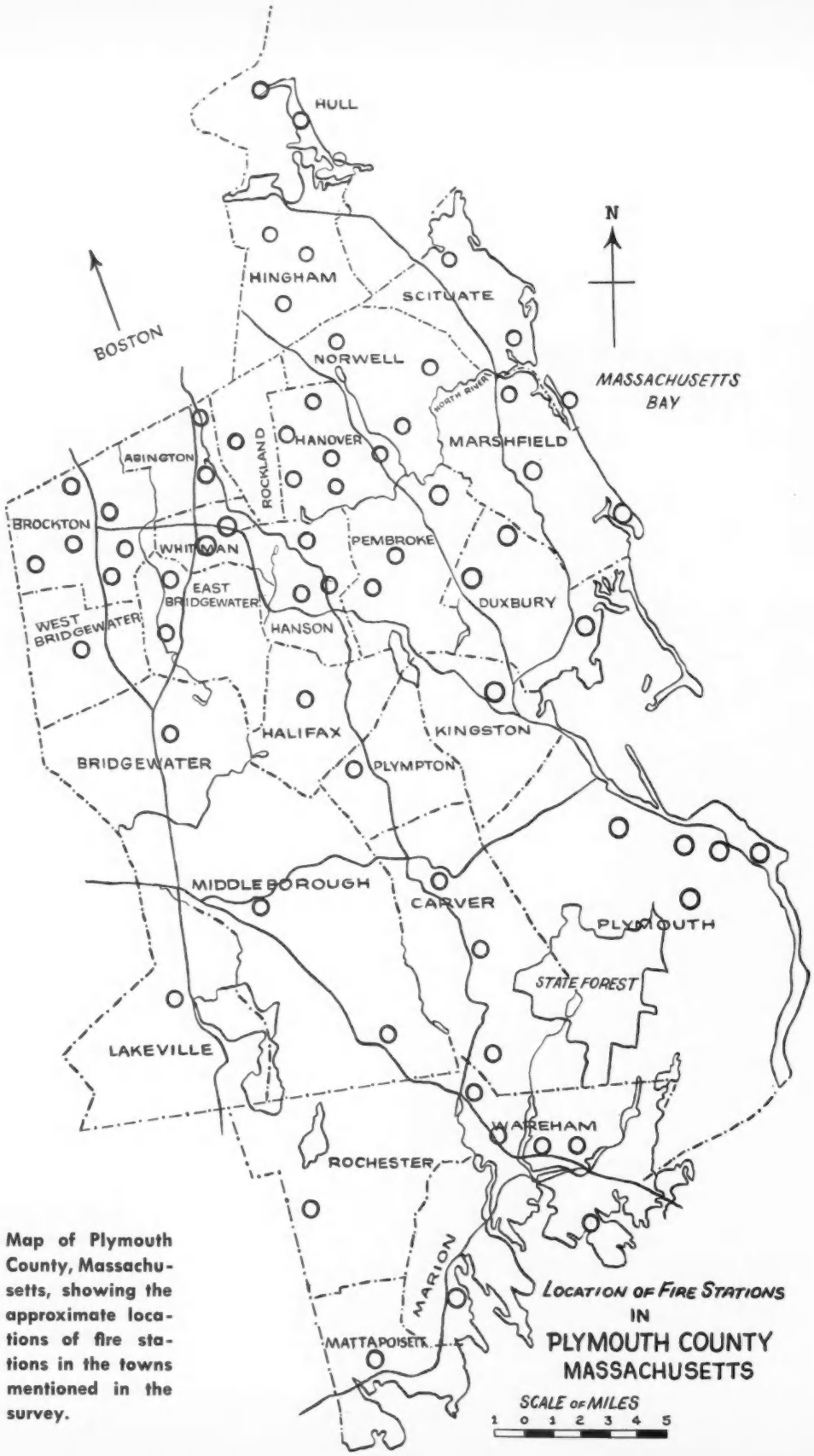
At the start Mr. Johnston outlined the proposed project to the Plymouth County Fire Chiefs' Association and had the full support and cooperation of that organization. Also assisting in an advisory capacity was Chief Albert W. Kimball of Hingham, Massachusetts, Fire Department, Secretary of the Massachusetts Fire Chiefs' Club, and Chairman of the NFPA Committee on Fire Hose.

General

PLYMOUTH County, situated southeast of Boston, Massachusetts, has 27 cities and towns and covers an area of approximately 676 square miles. The county population, reported in the 1955 census, was 213,587, while the 1955 total assessed evalution was $375,038,692. This includes real estate and personal property. The cities and towns in the County range in population from 800 for Plympton, to approximately 62,000 for the city of Brockton. In area, the smallest town is Hull with 2.257 square miles. The largest is Plymouth with 106 square miles. Present assessed evaluations range from approximately one million dollars for the town of Plympton to approximately 97 million dollars for Brockton.

It should be noted that the County organization in Massachusetts is similar to the township form of government found in other parts of the country.

Plymouth County has urban, suburban, and rural communities. It also includes a U. S. Navy Ammunition depot, a large fireworks manufacturer, several large State institutions, and a fairly large State forest. There are also numerous and assorted industrial firms, and privately owned farms of considerable size.



Map of Plymouth County, Massachusetts, showing the approximate locations of fire stations in the towns mentioned in the survey.

Several towns in the County are summer resort communities. They have comparatively low winter populations and very high summer populations, thus these towns must have larger fire departments than normally would be found in a town where the year 'round population equalled the winter population of the summer resort town.

Plymouth County, therefore, presents considerable variation in the problems of fire suppression and prevention.

Some of the communities are quite completely covered by hydrant systems. Others have to carry on fire apparatus all of the water they use to put out a fire.

Fire Department Organization

THE 29 fire departments in Plymouth County have a total of 66 fire stations housing 175 pieces of apparatus. This County has at least one of every type fire department which can be organized under Massachusetts law. It is interesting to note the percentage of annual budgets appropriated for the operation of fire departments (including the purchase of new equipment). Based on the total amounts appropriated in town meetings in 1955, it ranges from 1 percent for a town having a volunteer fire department in which the town appropriates money only to maintain the apparatus, to more than 13 percent in a town which has a permanent force operating the fire department.

Another figure brought out from the survey shows that the amount of money spent on the fire departments, compared with the assessed evaluation for the individual cities and towns, ranges from 9/100th of 1 percent for a volunteer type fire department to 93/100th of 1 percent for a paid department which is permanently organized.

It is also interesting that the town with the smallest area has the highest percentage of money appropriated to maintain and operate the fire department, in both the amount appropriated in 1955 town meeting and the percentage based on the 1955 assessed evaluation. This is because the town is principally a summer resort. The permanent, (or winter), population is small, but the summer population is very large and presents a need for more fire protection than would be required for a town of the corresponding winter population.

The per capita ratio of total population to fire department personnel ranges from 31 for a volunteer department town to 350 for a town with a permanent paid force. This means that in one town there is one fireman for every thirty-one (31) men, women, and children in the town. With a ratio as high as this, the procurement policy of the department could be influenced to a great extent. It should be pointed out that in this town 3 percent of the total amount appropriated in 1955 went to the fire department.

There are 14 fire departments in the County which have a combination of a permanent and call force. One of these departments has a chief that is permanent, the rest of the department is on call. Thirteen fire departments have all "call" men. There are various arrangements for paying the part-time "call" firemen. Some are paid a retainer fee on an annual basis, plus a fixed rate while on fire duty. Others are paid only an hourly rate while on fire duty.

One department is made up of all volunteers. The town appropriates money only to maintain the equipment. The men receive no compensation for fire duty.

The City of Brockton has the only completely paid, permanent fire department in the County.

The town of Wareham has three distinct fire departments covering 38 square miles. It is interesting to note that, of the three departments in the Wareham organization, one, the Onset fire district, is composed of permanent paid members plus a call force, while the Wareham fire district and the Wareham forest district are all call men. The town maintains the Wareham forest district department.

The Wareham fire district is maintained by an additional district tax levied on property owners in the area served by the Wareham fire district. The Onset fire district, likewise, is maintained by an Onset fire district tax levied on people who own property in the area served by the Onset Fire Department. Hence Onset property owners not only have a tax for their own district fire department, but they pay, through their town taxes, a share of maintaining the Wareham forest fire district department. Property owners who live in the Wareham fire district also maintain, through town taxes, their share of the Wareham forest district as well as the Wareham fire district.

Except in the Wareham (Onset) and Wareham (Town) fire departments, the chief of each fire department in Plymouth County is also the Forest Fire Warden.

Summary of Fire Apparatus in Plymouth County

Total number of pieces		175
(1)	Number custom built*	78
(2)	Number built on commercial truck chassis	97
(3)	Number 1,000 gpm pumps	2
	(*a*) Commercial truck jobs	0
(4)	Number 750 gpm pumps	(3 quads) 34
	(*a*) Commercial truck jobs	2
(5)	Number 600 gpm pumps	5
	(*a*) Commercial truck jobs	4
(6)	Number 500 gpm pumps	(1 quad) 53
	(*a*) Commercial truck jobs	32
(7)	Number of pumps less than 500 gpm capacity	63
	(*a*) Commercial truck jobs	59
(8)	Number of ladder trucks	18
	(*a*) 85 ft. aerial	3
	(*b*) 75 ft. aerial	4
	(*c*) 65 ft. aerial	7
	(*d*) Other	4
	(1) Commercial truck jobs	1

*Apparatus constructed from the chassis up by an apparatus builder.

The custom built apparatus used in Plymouth County represents the work of six (6) apparatus builders. Apparatus built on commercial truck chassis represented 55 percent of the total pieces in service in the County and was assembled by five (5) different companies, all located within the Commonwealth of Massachusetts. Several pieces were built on commercial chassis by fire department personnel as noted elsewhere in the report.

Six (6) of the commercial truck chassis apparatus were considered by the chiefs to be underpowered. These were found in several fire departments.

The following table gives the listing of commercial trucks found in service and reserve.

Commercial Trucks in Service or Reserve

Chevrolet	11	
Diamond-T	9	
Dodge	30	(11 of which are Dodge "Power Wagons")
Ford	36	
GMC	4	
International	7	
Total	97	

Due to the fact that one of the apparatus manufacturers is located in this County and has a reputation for excellent service, 35 percent of the total pieces were either built or assembled by this one company.

Fire Apparatus in Service or Reserve per 1,000 Population (Permanent Residents)

City or Town	Pieces per 1,000 Pop.	City or Town	Pieces per 1,000 Pop.
Abington	0.3	Marshfield	1.6
Bridgewater	0.7	Mattapoisett	1.2
Brockton	0.25	Middleborough	0.8
Carver	2.9	Norwell	1.4
Duxbury	1.9	Pembroke	1.3
E. Bridgewater	0.9	Plymouth	1.1
Halifax	2.0	Plympton	5.0
Hanover	1.4	Rochester	1.4
Hanson	1.9	Rockland	0.4
Hingham	0.7	Scituate	1.0
Hull	0.9	Wareham (3 Depts.)	1.3
Kingston	1.7	W. Bridgewater	0.7
Lakeville	1.7	Whitman	0.5
Marion	2.2		

Engine Maintenance

ONE thing of interest brought out in this survey was the relatively high degree of care given to apparatus throughout the County. Only one fire department had no regularly scheduled routine for changing oil in the motor and greasing the apparatus. Two departments had full time mechanics. All other departments had regular arrangements to service the motors.

Every department makes a practice of changing the oil in the motor after every heavy pumping job. The schedule below is in addition to this practice.

Motor Oil Changes

4 times a year	8 departments
3 times a year	4 departments
2 times a year	8 departments
Once a year	6 departments
Every 1,500 (motor) miles	1 department
When dirty	1 department
Heavy pumping jobs only	1 department
	29 departments

Routine on Greasing Apparatus

4 times a year	6 departments
3 times a year	2 departments
2 times a year	15 departments
Once a year	5 departments
No routine	1 department
	29 departments

Some motor fire apparatus manufacturers advocate that the oil pan be dropped and the crankcase cleaned at least once every five years. As part of this survey the question was asked, "How often do you drop the oil pan and clean the crankcase?" The answers obtained are in the following table.

How often do you drop oil pan and clean crankcase?

Every 5 years	3 departments
Every 3 years	1 department
Every 2 years	2 departments
Every year	4 departments
Twice a year	1 department
Depends on condition of oil	1 department
Never	17 departments
	29 departments

No general pattern could be drawn from these figures, as some of the departments which reported that they never dropped the oil pan use custom built apparatus, while others use apparatus built on a commercial truck chassis. The usage the apparatus gets was not a factor because, of the 17 departments reporting that they never drop the oil pan on the apparatus, the runs varied from nineteen (19) a year to over one hundred (100) per piece of equipment.

It is interesting that all departments follow the motor manufacturers' recommendation concerning the SAE viscosity number to be used. There were several different makes of oil in use.

Gasoline Used

"Hi-test"	24
Regular	4
Marine grade (white)	1

All brands of gasoline sold in Plymouth County are represented in the above figures. There was no one make preferred.

There was no standard procedure for the procurement of gasoline. Some fire department purchases were included in the purchases, under contract, for all town departments. Other fire departments purchased their gasoline from a local gas station.

In all but four (4) departments, the chief felt that the best grade of gasoline which could be bought should be used to obtain top performance from the apparatus.

It was not uncommon to find safety cans of extra fuel on the forest trucks.

In view of the care given the apparatus, there are a considerable number of pieces over 10 years old in service. This equipment still performs satisfactorily.

The following table gives the age of apparatus in service and reserve.

Age of Apparatus

Age	No.	Percent of Total
Over 25 yrs. old	20	12 (8 pieces classed as spares)
Over 20 yrs. old	9	5
Over 15 yrs. old	17	10
Over 10 yrs. old	28	16
Over 5 yrs. old	48	27
Under 5 yrs. old	53	30

The oldest piece of apparatus in the County was one built in 1919. This was used as a spare.

One piece built in 1925 gave yeoman service during the hurricane of 1955, pumping day and night for one week.

Forest Fire Equipment

PLYMOUTH County has a considerable area which is wooded. Brush and woods fires are a constant threat to houses located in or near these wooded areas. In 1955 there were over 800 woods, brush, grass and dump fires in this County. Of these fires, 192 were classed as forest fires and burned an area of 2,255 acres.

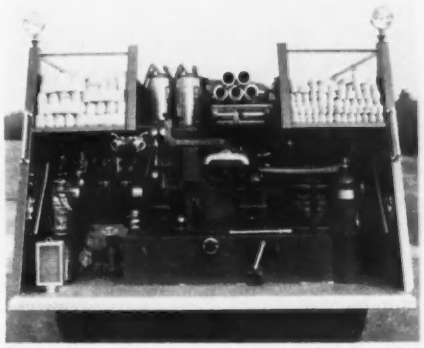
Departments where woods fires are a constant threat have equipped themselves with various types of specialized equipment to fight this type of fire. This apparatus falls into two classes: the forest fire truck and brush breakers. Both classes of equipment are generally built by fire apparatus builders on commercial truck chassis.

Brush breaker in Wareham features a Ford F-7 motor and chassis with 4-wheel drive. It has a 700-gallon water tank, a 200 gpm power take-off pump, a 100 gpm portable pump, carries 1,000 ft. of ¾-in. booster hose, 1,000 ft. of 1½-in. double jacket crl hose, a 25-ft. extension ladder, and a 14-ft. roof ladder.

The principal difference between a forest fire truck and a brush breaker is that brush breakers are built with a heavy iron frame around the outside of the vehicle, to prevent low hanging branches from damaging the windshield and other parts of the vehicle. A brush breaker is considered highly maneuverable and can go through the woods, knocking over small trees to get to a fire. Small, portable pumps are used with this equipment. The Plymouth Fire Department, with the largest number of brush breakers in the County, buys commercial chassis and builds the equipment in its shop.

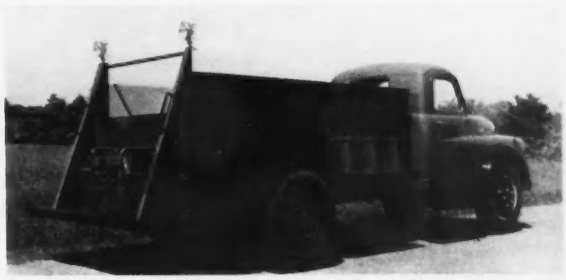
The City of Brockton recently purchased this specially designed forest fire truck. Built on a Ford F-750 chassis, it has a 200 gpm rotary gear pump, a 700-gallon water tank, carries 750 ft. of 1⅛-in. forestry hose, 750 ft. of 1½-in. double jacket crl hose, and foam and wet-water producing equipment for truck fires.

Engine 4 in Marion has a Dodge truck chassis and an 800-gallon water tank, a 200 gpm rotary gear pump and a 150 gpm skid-mounted pump unit on the rear step. It also carries 800 ft. of 1⅛-in. forestry hose, 500 ft. of 1½-in. double jacket crl hose, a 24-ft. extension ladder, 13-ft. roof ladder, and five 10-ft. lengths of 2½-in. hard suction hose.



Rear view of Marion's engine 4 showing skid pump, neatly packed hose loads, nozzles, extinguishers, and other portable equipment.

The forest fire truck generally carries more hose than a brush breaker. Pumps ranging from the portable type capacity of 60 gpm to 500 gpm skid pumps are also found on this equipment. In Plymouth County there are two brush breakers with a water tank capacity of 700 gallons, three with a water tank capacity of 500 gallons, three at 400 gallons, and eleven with water tanks of less than 400 gallons capacity, for a total of nineteen. The forest fire trucks are as follows: one with 2,000 gallon water tank capacity; one with 800 gallons of water; three 700 gallons water tank capacity; two 600 gallons water tank capacity; six 500 gallons water tank capacity; four at 400 gallons capacity and twenty-



Middleboro's forest fire truck has a 600-gallon water tank on a Dodge truck chassis, a 200 gpm midship mounted rotary pump and a 90 gpm portable pump carried on the rear step. It also carries 300 ft. of ¾-in. booster hose, 500 ft. of 1½-in. double jacket crl hose and 600 ft. of 1⅛-in. forestry hose.

Duxbury forest fire patrol vehicle constructed on a Ford F-250 chassis carries a 200-gallon water tank, a 200 gpm power take-off pump and 250 ft. of ¾-in. booster hose.

two have less than 400 gallons water tank capacity. There are a total of thirty-nine.

Weight-Horsepower Ratio

Fifty (50) pieces of fire apparatus in Plymouth County were checked for the weight-horsepower ratio. The weights measured were those of the apparatus ready to roll, without the men. The apparatus was divided into groups and the weight-horsepower ratio figured for each piece.

The weight-horsepower ratio suggested by Nils G. Bjorck, Sales Engineer, Fire Apparatus, Ward LaFrance Truck Corporation, Elmira, New York, in his article "Power for Pumps and Pumpers," (reprinted from FIREMEN for November, 1952), was used as a basis for comparison. Bjorck suggests that, "the best ratio will be 83 lbs. to the H.P." He further suggests that a goal of "a weight to H.P. ratio of not over 100 lbs. to each H.P. will give good results."

The following table summarizes the data collected on the fifty (50) pieces.

Apparatus	83 lbs./H.P. and under	Over 83 lbs./H.P.	100 lbs./H.P. and under	Over 100 lbs./H.P.
750 gpm pumpers	7	9	13	3
600 gpm pumpers	0	3	1	2
500 gpm pumpers	0	14	4	10
Aerial ladders	1	5	2	4
Forest fire trucks	1	10	3	8
Total	9	41	23	27

It appears that the 750 gpm pumpers have a satisfactory ratio of H.P. to weight. However, for the other pumpers, the ratio of H.P. to weight is very much higher. This is due to the fact that in this class of apparatus the commercial truck job is commonly used, and there is a tendency to load this type of apparatus with all kinds of appliances. So, while the ratio of H.P. to weight as delivered is satisfactory, the ratio of H.P to weight on the piece ready to roll may be considerably higher.

Another factor to be considered as a cause for high H.P. to weight ratio on the 500 gpm pumpers is the experience of the fire departments, which has shown that the commercial truck jobs cost less and are more flexible than the custom built pieces. Hence, they become the "work horses" of the various departments, and while classed as 500 gpm pumpers, in actual service are "squad pieces" and as such carry considerably more equipment than would be found on a conventional pumper. In many of the small town departments surveyed, the 750 gpm pumpers were used on second alarms and mutual aid calls only.

The forest fire apparatus were all commercial jobs and the ratio of H.P. to weight ran from a low of 65 lbs./H.P. to 200 lbs./H.P. Here the emphasis was on cost, maneuverability, and traction rather than road speed. This type of apparatus is covered in detail in a separate section of this report.

Considerations in Purchasing Apparatus

This survey of fire equipment brought to light the fact that there were two main items in the consideration of purchasing apparatus: price and service. By service is meant the manufacturers' representative's field service.

It was the experience of all fire chiefs in Plymouth County that a good "selling job" has to be done by the fire chief himself during town meetings to get money for the purchase of apparatus. With increasing school population and increased costs of operating other town departments, the fire department has to compete for available tax money. Some of the chiefs recognized this fact and had a good public relations program to stress the importance of this particular service.

In many of the smaller towns it was found that, in general, quite satisfactory results with commercial apparatus, and difficulty in obtaining money for other needs of the fire department, made the chief content to campaign for a commercial job, rather than work for a custom built apparatus, however desirable.

There were numerous cases of commercial trucks giving good service. Of the 97 commercial trucks in the municipal fire service in the County, only six were considered unsatisfactory due to being underpowered.

It was also interesting that the price on a commercial truck job of the same rated pumping capacity, and delivered with similar equipment as a custom built piece, ran from $2,000 to $8,000 less in cost.

The difference in price is very important when one considers that, except in the City of Brockton, all other communities operate with a town form of government. As such they have a group of business men appointed as a finance committee, sometimes called a warrant or advisory committee, to examine each and every item to be acted upon at the town meeting. In general, the recommendations of this committee are followed by the town meeting.

In view of the fact that very few finance committees have members who are experts in every phase of the town's operations, it is extremely difficult for a fire chief to convince this committee that a custom built job should be purchased when a commercial chassis job will cost less. This is particularly true in a town where the assessed valuation is low and every $1,000 appropriated adds around $1 to the tax rate. If a chief fails to obtain the recommendation of the finance committee for purchase of apparatus, he has a much more difficult job at the town meeting, since he stands alone in his battle to get the necessary money appropriated.

One of the things that was brought out forcefully, in the survey of fire equipment in Plymouth County, was the importance of service by the individual motor apparatus manufacturer. It was very apparent that the service consideration was second to price in the initial purchase of fire apparatus, due to budget limitations. There were several chiefs who stated that they would not buy a certain make of apparatus either because their experience had been that the service was poor or because of the reported experience of nearby departments. Four departments which had one particular make of equipment in service, stated that they would not buy the same make again because over the past years the service had been so poor that they felt it would be worth more to pay additional money for apparatus from a company which had a reputation for providing good, efficient service.

In one town, the chief stated that his experience with the two pieces of such apparatus which they bought had been far from satisfactory. The equipment did not perform satisfactorily from the time it was purchased, and the field man had not been able to correct the difficulty to the satisfaction of the chief. He further stated that the service from the manufacturers' representative was very poor and that he would never buy another piece of this make.

The survey made clear that the experience which chiefs have with any manufacturers' representatives relative to service has a great bearing on the purchase of future apparatus. It is interesting that towns which have had unsatisfactory service feel strongly about it. The chiefs said that in their replacement programs they would not even consider purchasing the offending make. It should be significant to manufacturers that the chiefs who made such statements intend to buy additional apparatus, or replace present apparatus, within the next five years.

Specifications

SPECIFICATIONS used for bid purposes were obtained on substantially all of the apparatus purchased in 1955. These have been carefully studied and have been summarized for this section.

1. All motor pumpers of 500 gpm or greater capacity, purchased in 1955 and earlier, had Underwriters' approval.

2. In most cases NFPA-NBFU standard Number 19 was used as a basis for the specification, with added modifications applicable to local conditions.

3. In all cases the booster tanks on pumpers were specified with a larger capacity than the 150 gallons recommended in the standard. This raised the question of the trend in capacity of booster tanks during the past few years. The following table shows the capacity of booster tank for the various size pumpers and ladder trucks in Plymouth County, bought prior to 1950 and from 1950 through 1955.

The following table shows that water tank capacity has tended to increase during the last five (5) years on the 750 gpm and 500 gpm pumpers while the tanks on the ladder trucks have stayed around 100 gals. capacity.

Water Tank Capacity of Pumpers and Ladder Trucks

Number of Pieces of Apparatus (Figures prior to 1950 top line after 1950 bottom line)

Size or Type	Less than 100 Gals.	100 Gals.	150 Gals.	200 Gals.	300 Gals.	400 Gals.	500 Gals.	Over 500 Gals.
750 gpm	2	4	4	8	2	—	—	—
pumpers	—	3	—	2	4	1	1	—
600 gpm	—	—	—	—	1	—	1	—
pumpers	—	—	—	—	—	1	—	2
500 gpm	2	3	9*	8	—	—	6	1
pumpers	—	—	—	2	2	1	8	3
Ladder	2	2	1	2	—	—	—	—
trucks	—	4	—	1	—	—	—	—

*4 of these were 125 gals. tank capacity.

4. The section of the specifications dealing with ladders on pumpers was written based on local experience. Some pumper specifications called for longer ladders than they suggested in NFPA-NBFU standard No. 19 while others followed the suggested lengths.

5. In all cases a specific type of alternator was specified in the specifications.

6. The specifications spelled out completely the nozzles and other equipment to be furnished.

7. A trend towards electrically operated booster hose reels was noted. All pumper specifications whether 750 gpm or 500 gpm called for dual booster hose reels.

Apparatus To Be Purchased in the Next Five Years in Plymouth County

1,000 gpm pumper	2
750 gpm pumper	5
500 gpm pumper	11
Combination (squad)	3
Aerial ladder truck	5
Tank truck	1
Forest fire truck	12
	39 pieces

Fire Alarm Service

IN PLYMOUTH County, one fire department (Brockton) has a Gamewell Class A Fire Alarm system. Twelve fire departments have a Gamewell Class B Fire Alarm system, one fire department has a L. W. Bills Class B system, ten fire departments use the Telephone Company's "Red Network," and four fire departments use the Telephone Company operator to call the fire department.

All of the departments, except Brockton, have an audible outside alarm to notify call men of a fire.

With the advent of dial telephone being installed at Mattapoisett, Plymouth County, the fire department was faced with a situation of providing fire alarm service on a 24-hour basis. The town officials made a complete study of the situation and came up with a rather novel solution. There is a special office in the Town Hall which is manned 24 hours a day. All calls for police, fire, and civil defense emergencies come to this central office. The fire department has a private line, the police department has a private line, and emergency calls can be dispatched from this office. The fire department line has four telephones, one to the chief's house, one to the central station, one to the deputy chief's house,

Summary of Fire Equipment, Plymouth County, Massachusetts

Town and Population	Area and Valuation	No. Stations No. Trucks	No. Men	Fire Alarm	Radio (33.90 MC) Unless Noted
Abington (9,407)	**10.14 Sq. Mi.** $5,030,4 5	**2** 3	**9 Permanent** 37 Call	**46 Boxes** 3 Whistles	**2 Base** 4 Mobile
Bridgewater (9,059)	**25.5 Sq. Mi.** $9,464,889	**1** 5	**6 Permanent** 33 Call	**53 Boxes** 2 Klaxons	**1 Base** 6 Mobile
Brockton (62,628)	**21.5 Sq. Mi.** $97,182,500	**6** 16	**189 Permanent** —	**252 Boxes** —	**1 Base** (1) 7 Mobile
Carver (1,669)	**15 Sq. Mi.** $3,971,170	**3** 5	— 35 Call	**Telephone*** 3 Whistles	**1 Base** 5 Mobile
Duxbury (4,285)	**26 Sq. Mi.** $11,246,230	**3** 8	**3 Permanent** 73 Call	**Telephone** 4 Sirens	**1 Base** 6 Mobile
East Bridgewater (5,359)	**16.5 Sq. Mi.** $7,455,762	**2** 5	— 35 Call	**Telephone*** 1 Whistle	**1 Base** 5 Mobile
Halifax (1,500)	**20 Sq. Mi.** $3,112,960	**1** 3	— 28 Call	**Telephone*** 1 Whistle	**No Base** 4 Mobile
Hanover (4,350)	**16 Sq. Mi.** $5,402,640	**6** 6	— 116 Call	**Telephone*** 6 Sirens	**No Base** 8 Mobile
Hanson (3,612)	**8 Sq. Mi.** $4,548,950	**3** 7	— 50 Call	**Telephone*** 3 Sirens	**1 Base** 5 Mobile
Hingham (14,000)	**28 Sq. Mi.** $30,000,000	**3** 10	**37 Permanent** 48 Call	**90 Boxes** 6 Whistles	**1 Base** (2) 12 Mobile
Hull (5,824)	**2.26 Sq. Mi.** $22,689,330	**3** 6	**33 Permanent** 28 Call	**136 Boxes** 3 Whistles	**1 Base** (2) 9 Mobile
Kingston (4,000)	**19.8 Sq. Mi.** $8,988,150	**1** 7	**2 Permanent** 29 Call	**Telephone*** 1 Siren	**1 Base** 5 Mobile
Lakeville (2,382)	**36.6 Sq. Mi.** $2,936,675	**1** 4	— 25 Call	**Telephone*** 1 Siren	**No Base** 2 Mobile
Marion (2,776)	**14.3 Sq. Mi.** $6,185,692	**2** 6	— 36 Call	**15 Boxes** 1 Whistle	**1 Base** 5 Mobile
Marshfield (5,000)	**28.35 Sq. Mi.** $16,375,625	**3** 8	**1 Permanent** 75 Call	**Telephone** 4 Horns	**2 Base** 9 Mobile
Mattapoisett (2,661)	**17.00 Sq. Mi.** $5,030,485	**1** 3	— 37 Call	**Telephone** 1 Siren	**1 Base** (3) 3 Mobile
Middleborough (11,119)	**68.1 Sq. Mi.** $11,911,825	**2** 9	**13 Permanent** 56 Call	**60 Boxes** 2 Whistles	**1 Base** 6 Mobile
Norwell (4,127)	**21.3 Sq. Mi.** $8,160,138	**3** 6	— 75 Call	**Telephone*** 3 Sirens	**No Base** 7 Mobile
Pembroke (3,838)	**32.0 Sq. Mi.** $5,689,610	**3** 5	— 114 Call	**Telephone*** 3 Sirens	**No Base** 9 Mobile
Plymouth (13,892)	**106 Sq. Mi.** $33,339,550	**4** 15	**25 Permanent** 45 Call	**76 Boxes** 3 Whistles	**1 Base** 14 Mobile
Plympton (800)	**20.0 Sq. Mi.** $1,000,000	**1** 4	— 26 Call	**Telephone*** 1 Siren	**1 Base** 5 Mobile
Rochester (1,439)	**39.0 Sq. Mi.** $1,781,256	**1** 2	— 25 Call	**Telephone*** 1 Siren	**No Base** 1 Mobile
Rockland (10,500)	**7.5 Sq. Mi.** $11,754,262	**1** 4	**11 Permanent** 44 Call	**58 Boxes** 1 Whistle	**1 Base** 5 Mobile
Scituate (8,341)	**15 Sq. Mi.** $23,304,955	**4** 8	**40 Permanent** 20 Call	**56 Boxes** 4 Whistles	**1 Base** (2) 10 Mobile
Wareham (Onset)*	**38.03 Sq. Mi.** $18,086,128	**1** 4	**2 Permanent** 44 Call	**28 Boxes** 1 Whistle	**1 Base** 5 Mobile
Wareham (Town)*		**1** 4	— 40 Call	**17 Boxes** 1 Whistle	**1 Base** 4 Mobile
Wareham (Outside)*		**3** 5	— 84 Call	**Telephone** 3 Whistles	**1 Base** 5 Mobile
W. Bridgewater (4,559)	**18.0 Sq. Mi.** $6,478,392	**1** 3	— 28 Call	**Telephone** 1 Whistle	**1 Base** 4 Mobile
Whitman (9,345)	**6.7 Sq. Mi.** $9,709,755	**2** 5	**11 Permanent** 32 Call	**69 Boxes** 2 Whistles	**1 Base** 5 Mobile

* Wareham Total Population 8,612

***Telephone "Red Network" System in Each Town**

(1) 154.31 MC
(2) 154.19 MC
(3) 39.82 MC

Fire Equipment In Service and Reserve

Town	Motor Apparatus — Pumps (gpm) and Ladder Trucks Water Tank Capacity (Gals.)	Fire Hose in Feet					Remarks
		¾″	1⅛″	1½″	2½″	3″ & up	
Abington	**1-750** (200) **1-500** (200) **1-L.T.** (60)	1950	950	4000	8650	–	Chief also Supt. Water Dept.
Bridgewater	**2-750** (100) (150) **2-200** (150) (325) **1-75′ L.T.** (100)	1350	1300	1800	6500	–	
Brockton	**7-750** (7-150) **4-comb.** (4-35) **1-200** (700) **2-85′L.T.** (0) **1-65′L.T.** (300) **1-L.T.** (0)	6000	500	10,000	24,400	2750	
Carver	**2-200** (2000) (500) **1-250** (250) **2-500** (600)	1150	500	2550	2000	–	No Hydrants
Duxbury	**1-750** (150) **1-200** (200) **3-500** (150) (2-500) **3-100** (700) (200) (350)	2300	3800	1950	10,700	–	4500′ 2½ for Dump Work
East Bridgewater	**1-750** (200) **1-500** (200) **2-200** (200) (300) **1-L.T.** (200)	2150	–	4300	5200	–	Chief also Supt. Water Dept.
Halifax	**2-600** (500) (600) **1-150** (375)	1800	–	1250	2000	–	
Hanover	**6-500** (3-500) (3-200)	2400	–	3000	6000	–	Chief also Supervisor school maint
Hanson	**4-500** (2-80) (250) (100) **3-200** (250) (200) (300)	2600	–	2100	6700	–	
Hingham	**1-1000** (150) **2-750** (200) (150) **4-500** (400) (60) (2-300) **1-250** (300) **1-65′L.T.** (200) **1-L.T.** (60)	4400	–	6700	14,500	75	
Hull	**4-750** (2-100) (200) (300) **1-85′L.T.** (100)	1700	–	4150	10,750	100	
Kingston	**1-750** (500) **2-500** (2-100) **1-150** (100) **3-100** (3-300)	1600	900	2300	4200	–	Chief also Supt. of Streets
Lakeville	**2-500** (175) (500) **2-250** (175) (400)	2000	1200	1600	1300	–	No hydrants
Marion	**1-750** (80) **3-500** (150) (2-500) **1-200** (800) **1-100** (500)	750	3000	5450	3700	–	
Marshfield	**2-750** (100) (200) **1-600** (600) **2-500** (100) (500) **2-200** (100) (300) **250** (300)	3500	2000	3500	8000	–	
Mattapoisett	**1-750** (400) **1-300** (400) **1-200** (400)	2000	–	2500	3100	–	
Middleborough	**1-1000** (60) **2-750** (100) (200) **3-500** (200) (500) (700) **1-200** (600) **1-75′L.T.** (100)	2150	3300	4300	8100	150	
Norwell	**3-500** (3-500) **3-250** (500) (600) (750)	1700	–	3100	3000	–	
Pembroke	(Figures not available)						
Plymouth	**5-500** (2-300) (1-150) (2-125) **7-60** (3-400) (1-300) (3-200) **1-65′L.T.** (150) **1-LT** (60)	2150	3100	3950	8350	–	
Plympton	**1-500** (300) **1-200** (150) **2-150** (150) (400)	1200	200	2250	1450	–	No hydrants
Rochester	**1-500** (500) **1-125** (150)	600	450	300	700	–	No hydrants
Rockland	**2-750** (300) (100) **1-250** (200) **1-65′L.T** (100)	2200	1000	3200	9000	–	
Scituate	**3-750** (300) (2-200) **1-600** (400) **1-350** (200) **1-200** (300) **1-90** (300) **1-65′L.T.** (250)	(1″) 1250	10,600	2400	10,200	–	
Wareham (Onset)	**2-500** (2-200) **1-100** (350) **1-65′L.T.** (100)	1050	–	2700	5000	–	
Wareham (Fire Dist.)	**1-750** (300) **1-500** (200) **1-450** (50) **1-75′L.T.** (200)	1050	–	1700	6400	–	
Wareham (Forest Fire Dist.)	**1-500** (450) **3-200** (2-700) (1-500) **1-100** (200)	5000	–	6000	1000	–	No hydrants
West Bridgewater	**1-750** (200) **2-500** (150) (600)	1150	2400	1600	5100	–	Chief also Supt. Water Dept.
Whitman	**2-750** (200) (150) **1-600** (300) **1-500** (125) **1-65′L.T.** (100)	1100	1600	3100	5600	50	

Note: 1-L.T. means Ladder Truck other than Aerial. Includes Double Bank and Cities Service Type.

and one to the other officer's house. Thus the fire officers are informed promptly of the locations of fires and can respond when the alarm is rung. Town officials figured out that, with this system, they were able to have one central station cover the agencies of the town rather than have three separate set-ups. It costs approximately $9,000 a year to maintain this service. Other towns, faced with the same situation, have added permanent men to the fire department and permanent men to the police department. When an emergency arises, the fire or police department may be fully committed, and if a second call comes, confusion may result.

In the Mattapoisett system, the man in Town Hall acts as a dispatcher and never leaves the premises. This increases the efficiency of the fire and the police departments and does not increase costs by adding permanent men to both departments. This arrangement might be of interest to other towns faced with conversion to a dial telephone system.

Radio Equipment

Here is a summary of radio communications in the County. Twenty-four fire departments have two-way radio equipment operating in the Plymouth County Fire Department Network on a frequency of 33.90 MC. Three fire departments have two-way radio equipment operating on a frequency of 154.19 MC. One fire department, Brockton, has its own radio system and operates on 154.31 MC. One fire department, Mattapoisett, operates on the Police Band of 39.82 MC.

Every fire department in the County has two-way radio equipment. Those departments operating on a frequency different from 33.90 MC have to rely on telephone service for mutual aid calls.

Water Supply

The County, as a whole, has a very good water supply for fire fighting purposes. There are only seven fire departments which do not have hydrants as their principal source of water. These departments have to carry water on apparatus, and as a result have apparatus built for this type of service. All of these departments have pumping equipment to draft from ponds wells, brooks, and water holes which are numerous.

Twenty-two (22) fire departments use hydrants as their principal source of water for fire fighting so, except for forestry work, their apparatus has smaller capacity booster tanks than those departments who do not have hydrant systems at their disposal.

Fire Hose

In surveying the fire departments in Plymouth County it was interesting to note that only two fire departments were using Underwriter labeled 400 lb. test double jacket fire hose in their departments. It is very evident that the sales agents for various fire hose distributors or manufacturers have done a substantial selling job in securing orders for their respective brands of hose. A very small proportion of the hose is Underwriter labeled. It was also interesting that more and more of the departments are going to the 600 lb. test "Dacron" filler fire hose because they have found that "it is lighter and easier to handle and particularly the 1½-inch hose can be handled by one man much easier than the old 400 lb. test all cotton could."

At present 20 departments are using 1½-inch and 2½-inch double jacket Dacron filled hose. This is considered important in a call fire department. Often the apparatus arrives at a fire with only the driver, and, with the Dacron hose, he can start fighting the fire while the rest of the call department is arriving to take positions. None of the Dacron hose now used in Plymouth County has the Underwriters' label.

Seven departments use all cotton municipal grade on the 1½-inch and 2½-inch double jacket. There are 18 departments using 1⅛-inch forestry hose. The other 11 use either ¾-inch booster hose or 1½-inch double jacket hose for forestry work.

For booster hose, all fire departments except one in Plymouth County use the ¾-inch size. Scituate uses 1-inch booster line. Thirteen fire departments are using garden hose thread on booster hose couplings. Ten departments use Babcock thread. (Actually 1" N.S.T.). Four departments use Iron Pipe thread, and one department uses National Standard thread.

The following table indicates age of hose in service.

Age of Hose	No. of Depts.	
Over 20 years	8	
Over 15 years	10	
Over 10 years	5	
10 years	5	(These departments take hose out of service at end of 10 years)
Under 10 years	1	

Coupling Data

In Plymouth County, it is standard practice to use National Standard Fire Hose thread on 2½-inch double jacket hose. The type of couplings used on 2½-inch hose varied from department to department. Pin lug, roll pin, rocker lug, and slip lug types were found.

On the 1½-inch double jacket hose coupling threads encountered were Iron Pipe, National Standard, and Eastern Hose thread. This means that adapters have to be carried on apparatus for mutual aid work. Adapters must be carried on apparatus since many kinds of threads are used for pumper connections.

Those departments using 1⅛-inch forestry hose used the Massachusetts State thread and 1-inch National Standard thread on their couplings.

Suction Hose

Plymouth County fire departments have hard and soft suction hose of various diameters. Suction hose diameters of 1½-, 2-, 2½-, 3-, 4-, 4½-, 5-, and 6-inches were found. Twenty-one (21) departments use 4½-inch suction hose. It should be pointed out that of the twenty-one departments using 4½-inch suction hose, seven (7) also use 5-inch and 6-inch suction hose for particular pieces. In these departments it is common practice to carry hydrant adapters to connect to the 4½-inch connections. Five (5) departments use 4-inch suction hose.

Fort Washington Fire Company No. 1

New headquarters station of Fort Washington Fire Company No. 1, dedicated in May of this year. Ample parking area is provided at right.

ONE of the interesting aspects of the fire service is how some volunteer fire companies obtain the support of their communities to reach a certain goal. The history of Fort Washington Fire Company No. 1, Fort Washington, Pennsylvania, described on these pages, shows how such an objective can be reached.

Within two years, this volunteer fire company located in Upper Dublin Township, Montgomery County, Pennsylvania, will be celebrating its Silver Anniversary. On May 12 of this year the beautiful new fire station shown at upper right and built at a cost of $100,000 was dedicated to culminate 48 years of activity for the company.

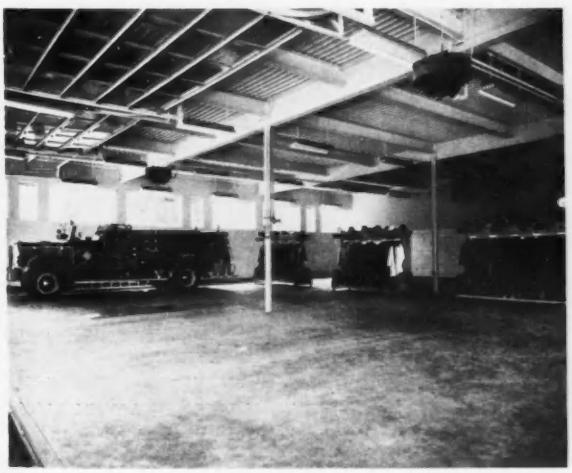
As in many communities through the nation, growing population, the development of a new Industrial Park, and the construction of many new homes forced the department to consider the building of more adequate quarters. Its previous fire station had been built in 1922 and did not have facilities for housing present fire apparatus and personnel.

The department is headed by Chief George Hagger, who directs seven fire officers and forty fire fighters. In addition, this volunteer fire company has a five-man Board of Officers and a six-man Board of Directors. There is also a Ladies' Auxiliary consisting of four officers and 47 other members.

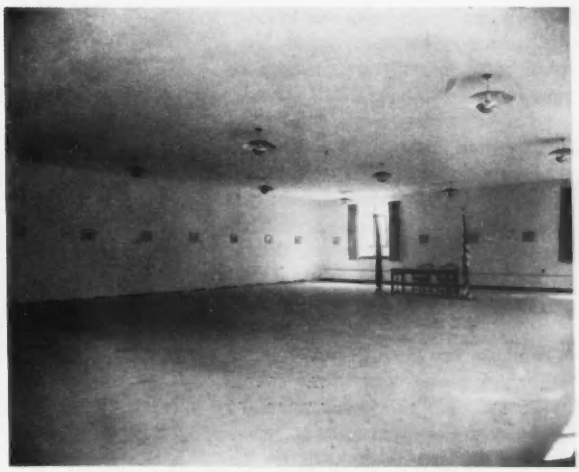
In planning the new fire station, a "New Building Committee," headed by Chief Hagger and consisting of five other members, made allowance for future expansion of the proposed station. Cost estimates received from contractors who bid on the proposed station were in the vicinity or $100,000 or approximately 77 cents per cubic foot or $11.00 per square foot of floor area.

The Building Committee then approached the Board of Commissioners of the township to determine the amount of money which could be raised through the existing 2 percent taxation on the total assessed evaluation of the township. This amounted to only $16,000, so the Committee prepared a ballot to secure approval of township citizens. The ballot read:

(*Continued on page 30*)



Apparatus room was planned to provide for future growth of the fire company. Building also contains a maintenance shop and radio room.



Meeting room of Fort Washington's new station can be used for fire company meetings or public ceremonies. It measures 45 by 59 feet and can seat 300 persons.

Current Problems of the Fire Service

By Chief William F. Fitzgerald, Seattle, Washington, Fire Department, President, International Association of Fire Chiefs. From an address given at the 60th NFPA Annual Meeting, Hotel Statler, Boston, Massachusetts, June 4–8, 1956.

FRIENDS and members of the National Fire Protection Association in convention assembled. As President of the International Association of Fire Chiefs, I bring you greetings. In doing so I am mindful of the close and friendly relations of these two great associations, of our community of purpose in a common realm of public service, and of the interrelated efforts we are making to achieve a common goal.

Speaking from knowledge gained by professional association and business dealings, I assure you that management of your association is in the hands of capable men of high character and integrity, men who are nationally recognized experts in their fields. It is a pleasure to pay public tribute to them here today, to tell you how we of the fire services appreciate them and of the great public service they are performing in the ever-changing realm of fire prevention.

Several years ago I responded to a second alarm in a bolt and nut factory. It was a one-story frame building of considerable area with a fire wall equipped with standard fire doors, dividing it into two areas, the machine shop and heat treating sections.

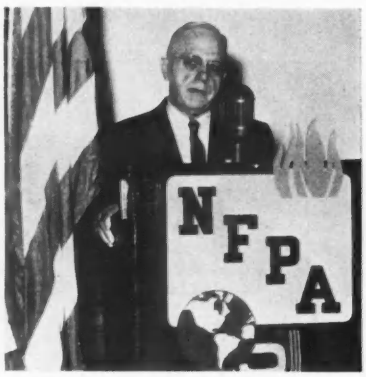
The latter area was completely involved by fire. After the fire was knocked down it was found that because the firedoors had operated, the fire was contained. Machinery, which plant management estimated as worth more than $100,000, was saved from certain destruction. At a convenient time I assembled all the firemen present and conducted an impromptu lecture on firedoors and their value, not as structural members, but as firemen. It was an on-the-spot lecture, quite effective, for the effective firedoor made an effective exhibit.

Later, in considering the sequence of the fire, it occurred to me that I had aided in extinguishment of hundreds of fires and that at every one of them, "built-in-firemen," blood brothers to the firewall and firedoors of the bolt and nut factory, had assisted in controlling the fires. There had been automatic sprinklers, fire escapes, standpipes, automatic alarms, fire windows, enclosed vertical openings, draft curtains, parapet walls, wired glass windows and fireproofed structural members, to name a few.

These built-in firemen have, through the years, rendered strong, sturdy and faithful services. Where did they come from? Who thought about them in the first place? Who established standards for their fabrication, and who engineered them for proficiency?

There need be no hesitancy in answering these questions, for these built-in firemen all originated, not in the fire extinguishing services, but in the engineering services of total fire defense, through such agencies as the National Fire Protection Association, the National Board of Fire Underwriters, Underwriters' Laboratories, Inc., and allied agencies.

These agencies, with their staffs, are seldom thought of in the sense of being firemen, especially not by the fire extinguishing branch. It is true that they work with the slide rule, the thermocouple, blueprint, microscope and testing furnace, rather than with an axe, nozzle, fire hose, smoke mask or pumper. They work in the laboratory rather than in a burning building. Nonetheless, they are firemen in the deepest and all-inclusive meaning of the term. For every advance in basic and background fire defense has come from this segment of the industry.



Chief William F. Fitzgerald
Fire Department,
Seattle, Washington

It is only when we study and consider what the Handbook of Fire Protection, the National Fire Codes, the standard Building Code and the grading schedule, among many basic ideas, have and are contributing to national fire defense, that we may comprehend a measure of their true stature as firemen. They are the only firemanic agencies national in scope.

Coincident with, or following establishment of these standards, came efforts for their application by enactment into law. These efforts met with a degree of success. Today, wherever fire safety laws and building codes have been enacted into law, their basic structure results from the standards originated by the fire defense industry. In fact, our whole national structure of fire defense, the whole body of fire safety law, stems directly from these fire engineering standards.

FIRE safety codes and laws represent exercise of the police power by the states, counties and municipalities, control, in the interest of the many, of fire hazards created by the few. They lead to public safety from fire. These laws created problems of law enforcement and inevitably came establishment of state, county and municipal fire marshal organizations, the municipal operation being tied to the municipal fire department. Thus, fire prevention bureaus were developed in municipal fire departments all over the land. Usually they are headed by young and alert officers of the local fire departments and manned by a staff of inspectors selected from the fire departments, the number being tied to the local fire prevention load. Through these processes, municipal firemen, for the first time in history, became law enforcement officers, a revolutionary idea in its day.

Early in the course of these evolu-

tionary processes, pre-dating most of them and coincident with birth of the National Fire Protection Association, began development of the psychological approach to fire defense, the fire prevention idea. This is best exemplified by National Fire Prevention Week, a week when all segments of the fire defense industry, using all available channels of publicity, direct attention of the people to what they may do as individuals to prevent fires.

This approach is based on the fact that people are causing the majority of fires by unsafe acts that may be controlled only by conscious exertion of will by the individuals. A law may be enacted making it unlawful to smoke in bed, but all the people in bed at any given time cannot be policed for enforcement. By education, the individuals must be shown the danger involved and that it is in their personal interest not to smoke in bed. Education through the schools is also involved in this fire prevention process.

The fire defense industry, principally under leadership of the National Fire Protection Association, has made good progress in this psychological fire prevention campaign. However, like false alarms, it is a never-ending problem. Each rising generation must be indoctrinated in turn. We have not reached people *en masse*, so psychological fire prevention is one of the leading problems now confronting the fire defense forces.

The International Association of Fire Chiefs has taken cognizance of this and is currently engaged in a three point program, national in scope, of bringing fire prevention to the people by, first, radio fire prevention inspection of buildings by uniformed firemen in company units, under officers using fire apparatus as a means of transportation; second, a home visitation program by uniformed firemen visiting every home with a fire prevention presentation; and third, fire prevention by telephone, a presentation to every telephone-equipped dwelling occupancy from the respective precinct fire stations. Details of these phases of the problems are too involved for discussion here but are available on request. (*The Seattle, Washington, Fire Department has been conducting a telephone fire prevention campaign since last year — Ed.*)

DISPERSION of population and industry from our cities to the rural areas surrounding our cities, shown by even a cursory study of the metropolitan district surveys by the National Census Bureau, is also a current problem of no mean significance. A 120-story building planned for suburban St. Louis, Missouri, is an example. Automobiles and economic factors such as markets, labor, transportation and favorable tax climate, and dispersion as a phase of national defense, are moving industry from our cities with their organized municipal services, including zoning and building laws, into rural areas with a minimum of so-called restrictive laws.

Inevitably, near-catastrophic fires occur. The General Motors fire in Livonia, Michigan, (see preprint with this title, from NFPA *Quarterly* 1953 — Ed.) is an example of how industrial fire defense can be affected. The impact is felt throughout industry. Ways and means must be devised to provide rurally located industry with fire protection on a par with the municipal level. Perhaps metropolitan fire departments, independent of geographical boundaries, and application of sound fire protective and engineering standards, built-in fire protection for structures and contents, will provide the protection.

So long as national defense, induced by world communism and the cold war with its threat of atomic and hydrogen bombs continues to be a problem for the national government, Civil Defense will remain a problem for the fire defense forces of the nation. It confronts every municipal and suburban fire department today. Wide overall policies of Civil Defense have been defined, but there is no unanimity of opinion by the fire service itself as to details and much confusion exists.

Even the question of whether fire defense organizations shall disperse from our cities with the civil populations, has not been resolved. Then, too, the danger always exists of the Civil Defense tail wagging the fire department dog. Civil Defense administrators see fire departments as manpower tools of trained instructors which they want to use for Civil Defense purposes. Through this process, it is possible for fire departments to become so deeply enmeshed in Civil Defense that they may lose sight of their prime objectives. There is much room for constructive and authoritative planning by the fire services in this area of current fire defense problems.

Another current problem is total acceptance of existing standards of fire defense by enactment into laws, followed by enforcement. For instance, there is the standard, supervised automatic sprinkler system, (*see NFPA Standard No. 13—Ed.*) which is the best and most effective form of fire protection. Properly maintained, it not only protects individual properties, but also tends to eliminate serious group fires and decreases conflagration hazard.

Yet how many fire departments are carrying on an organized, persistent and planned campaign for installation of sprinkler systems? Or for enactment into law of the standards for control of fire hazards published by the National Fire Protection Association and the National Board of Fire Underwriters? Carried out on a national basis, such campaigns would attain startling results. The impact on fire defense would be awe-inspiring. High success is indicated. The field is fertile. Such campaigns have never been tried on a national basis.

Then, too, has risen the problem of integration of fire and police services into a safety department, manned, not by firemen and policemen, but by safetymen. The movement apparently arises from the high and ever-increasing cost of municipal protective services, also the limited concept of total fire defense by many fire departments where fire extinguishment is the sum total of service. The problem is a challenge to fire department management, for wherever a full fire defense program of fire protection, one which encompasses all phases of public safety, is in vogue, integration seldom arises. Scope of the problem, a recurring one, and its impact on total fire defense, is not clearly defined at this time.

FINALLY I come to the one current problem ,which, if solved, will exert the greatest impact on fire defense, faster and at less cost and administrative effort, than any other. I refer to full acceptance by

(*Continued on page 27*)

Fire Problems Occasioned by Aircraft

by Warren Y. Kimball

Part III

IN OUR previous discussion we covered some problems of size up of fires resulting from airplane crashes. Let's review in the following manner:

(1) Where is the accident in relation to our community? Is it in the congested business, industrial, residential, or suburban area?

(2) What type of aircraft and other property is involved? What's burning? What equipment and help do we need?

(3) When does the accident take place? Day or night? Are exposures occupied? Are streets full of traffic?

(4) How are we going to operate to save life and property?

(5) Who must be alerted such as available airport crash crews, military and Civil Aeronautics Board authorities?

Let us remember that no matter how serious the situation we are not responsible for the accident to the aircraft, but we are responsible for protecting our citizens and their property from further extension of damage. We also have the humane responsibility for mitigating all possible suffering of the victims.

Now, when we roll up to a plane crash we must immediately assign charged lines to cover any necessary rescue operations both in the aircraft, in exposed buildings, and in the street or other adjacent outside area. Ladder company and rescue company crews will be needed to remove injured and endangered persons. This may be no easy job, as in addition to fire, structural collapse frequently results.

Streams placed in operation must be adequate for the task. Obviously, hand lines must be used for inside work but heavy streams may well be needed to cope with heat from a fire which may involve several thousand gallons of released gasoline. In such a situation, ability to put both heavy streams and hand lines in service without delay is vitally important. The set-up of the Boston Fire Department, as illustrated in NFPA Standard 406, (covering use of municipal apparatus on crash fires) permits immediate use of 1½-inch and 2½-inch hand lines equipped with fog nozzles and a heavy stream nozzle carrying a large fog nozzle. These nozzles can also be operated as solid streams where desirable for reach and penetration.

Four 1½-inch fog streams at work. Inside lines are directed along fuselage, outside lines are sweeping fire to side perimeters. (This test fire diked to retain fuel spill.)

Water fog has dissipated flames making fuselage accessible to rescue crews. Most of fire driven aft where no occupants are exposed.

Because public and private water systems are laid out primarily to serve and protect structures we frequently do not have water immediately available in adequate quantities for our major crash fire fighting operations. As at other fires, we go to work at once with our 1½-inch lines that can be operated from tanks on the apparatus. In this connection we must judge the length of time that our tank supply will last. We may have a number of preconnected 1½-inch lines available on our first alarm apparatus but the fire officer's job is to provide a water screen or umbrella for rescue operations that may require some minutes under most adverse conditions where portions of the plane have been severely damaged and unconscious persons are strapped in their seats and trapped by wreckage. Thus the officer must instantly begin operations to keep the fuselage cool and maintain this operation until all trapped occupants can be removed or sufficient fire fighting equipment has been placed in service to extinguish the fire. If this fire officer has at his disposal equipment with 4 or 6 pre-connected lines he must use his judgment as to what control he can maintain over the fire and what equipment must be deployed in laying out to the nearest water supply, such as hy-

(*Continued on page 33*)

Current Problems of the Fire Service

(Continued from page 25)

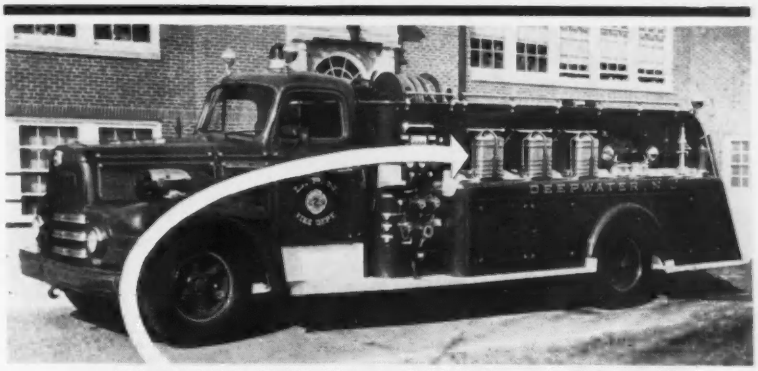
fire department management of fire prevention as at least one-half of the job of total fire defense, followed by action to activate a program. In too many fire departments the ancient custom still exists of keeping firemen and fire apparatus in readiness in fire stations. Thus, a manpower pool of trained and indoctrinated firemen is maintained in almost complete fire prevention idleness while a small force of fire inspectors, organized into a fire prevention Bureau, struggles with the job of preventing fires. In our present fast-moving economy and changing governmental structure, such a method is indefensible. Total fire defense is big enough, complex and important enough, to challenge the total resources of the fire fighting forces. Fire department management must gain a new concept of the costs, effective use of manpower and the total problems.

A radio fire prevention inspection service by organized companies of firemen, the fire fighting forces, using fire apparatus as a mode of transportation, is an answer to this problem. The effort must be on a managed, organized, planned and persistent basis, and established and accomplished as an accepted and regular mode of daily fire department routine. It is only when the total fire fighting force engages in every phase of fire defense that a full program results.

Though we have our problems, they are not insurmountable. Much planning, research and thinking has gone into solving them; solutions are in sight and from time to time rays of fire prevention light shine through the fire loss gloom.

I face the future with great confidence, for as I note the fire engineering skills of our nation at work and the operating technicians of fire extinguishment earnestly seeking solutions, an inevitable sense of security develops. We who live, serve and dedicate our lives to this great principle of national fire safety should then take heart and continue to strive for a safer society, for that is our destiny, our ever-present hope.

If you change address, please notify the NFPA Executive Office.



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Ann Arbor TWP F. D.,
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C D Data Dribbles Out

NOWHERE is the ponderousness of government operations better illustrated than in the slowness with which technical information on World War II civil defense has been made available. Much useful information was collected immediately following World War II by special teams of experts associated with an official Army Air Force project, the United States Strategic Bombing Survey. These teams investigated the effects of bombing, particularly in Germany and Japan. Work was also done by teams of the British Home Office. A few bits and pieces of information from these studies became available in official reports. The NFPA brought together some people who participated in USSBS fire studies at the 1946 Annual Meeting of the Association, ten years ago, in Boston, and these and some supplementary papers are assembled in a book, "Fire and the Air War," edited by Horatio Bond, Chief Engineer (1948, 274 pages, $4.00).

A great mass of valuable, originally compiled, technical data was never generally available, although small editions of some of these documents had limited circulation, particularly among the people who had worked on the studies. Among these might be mentioned a number of volumes of extreme practical value. These include: Reports of the Physical Damage Division of USSBS; The Effects of the Atomic Bomb on Hiroshima (three volumes) and on Nagasaki (three volumes); the Hamburg Field Report, Vol. I, of the USSBS Civil Defense Division; British Bombing Survey unit report on the Effects of Strategic Air Attacks on German Towns; and the report translated from German of the Police President of the city of Hamburg, Germany, on the large scale raids on Hamburg in July and August, 1943.

The significance of these documents is that while they cover civil defense measures related to weapons and tactics of World War II, they nevertheless establish principles applying to a new problem.

People concerned have urged the various military and civilian agencies, which have had responsibility for civil defense in the United States, to make these and other technical studies available for the benefit of those who might be trying to figure out both a general program and operational details of civil defense. The documents in question have all been in printed form since 1945 in the case of the U. S. reports mentioned above, and since 1946 in the British report and the translated report of the Police President of Hamburg.

It has been for the most part a simple matter of republication. Some argument, not too vigorously raised from time to time, has been that there were classification difficulties in some cases. But the reports most immediately needed for civil defense planning involved little that justified classification.

The United States Federal Civil Defense Administration did however, in 1952, make arrangements for summarizing these reports to produce a series of volumes containing selected data for civil defense planning. Stanford Research Institute undertook the preparation of this series of volumes under contract. It employed the Institute of Research of Lehigh University to do the work on physical damage covered by the volumes. The work of Stanford and Lehigh therefore provides in summary form some of the information from technical reports available. While these summaries do not give the reader the original material, they nevertheless provide some information and arrange it logically for study.

All of the foregoing is simply to provide background for the announcement which can now be made that some of the volumes prepared by Stanford and Lehigh have been published and are available from the Superintendent of Documents, United States Government Printing Office, Washington 25, D. C. This last operation has taken some two years as FCDA has had the volumes since 1953. The published series is still incomplete as it still lacks at least two volumes in which there are data on fires and fire departments.

The United States Government Printing Office, in December 1955, issued the first edition of its Price List 84, *Atomic Energy and Civil Defense*. Readers who wish a complete listing of these particular volumes and others on civil defense or atomic energy should write to Superintendent of Documents, Washington 25, D. C., for a copy of this official list.

The volumes now available are the following:

Impact of Air Attack in World War II: Selected Data for Civil Defense Planning, Division I: Physical Damage to Structures, Facilities and Persons, Volume I: Summary of Civil Defense Experience. 1953. 87 pages. 45 cents (This volume makes reference to *Volume II: Amount and Extent of Physical Damage.* Volume II is not yet listed as being available by the Government Printing Office. Volume I, however, notes that the material on fire fighting is to be found in parts 3 and 4 of Volume II. Volume III is not identified). *Volume IV: Evaluation of Source Material.* 1953. 10 pages. 10 cents (This publication is mostly duplicated in the Final Report listed below).

Impact of Air Attack in World War II: Selected Data for Civil Defense Planning, Division II: Effects on the General Economy, Volume I: Part 1, Economic Effects — Germany. 1953. Pages 277-444. 75 cents. *Volume I: Part 2, Economic Effects — Japan.* 1953. 330 pages. $1.50 (These volumes describe various features of plant protection, utilities and public fire department and water supplies. Many of the observations were made by observers without fire experience).

Impact of Air Attack in World War II: Selected Data for Civil Defense Planning, Division III: Social Organization, Behavior and Morale under Stress of Bombing, Volume I: Public Attitudes and Behavior. 1953. 271 pages. $1.25. *Volume II: Organization and Adequacy of Civilian Defenses.* 1953. 209 pages. $1.00 (These volumes contain some dramatic accounts of how people behaved in fires, but the information is fragmentary).

Impact of Air Attack in World War II: Selected Data for Civil Defense Planning, Evaluation of Source Materials, Final Report. 1953. 38 pages. 25 cents.

Comic Books for Children

A NEW, lower price on the Smokey Stover series of fire safety comic books has just been announced by the NFPA Publications Department, 60 Batterymarch Street, Boston 10, Massachusetts.

The popular 16-page, four-color booklets can now be obtained for $30 per thousand copies, F.O.B. Boston. The former price was $45 per thousand.

The first Smokey Stover book, originally published in 1953, humorously treats some of the principal fire hazards about the home.

Smokey Stover comic book No. 2 was released by the NFPA in 1954. Its theme is principally child fire safety. Illustrations and copy for both books were prepared by Bill Holman, well-known cartoonist.

The back covers on both books are blank for imprinting locally. When ordering from the NFPA Publications Department, specify G43C for Smokey Stover book No. 1 and G43D for No. 2.

Price for quantities of less than 1,000 copies is $3.50 per 100; $30 per thousand up to 10,000; and for quantities of more than 10,000 copies, $25 per thousand.

Windstorm Damage Prevention

A HELPFUL brochure on windstorm damage prevention has been issued by the National Board of Fire Underwriters, 85 John Street, New York 38, New York. It deals with the effects of tornadoes and hurricanes upon structures, refers to the need of maintaining fire protection during windstorm emergency conditions and suggests precautions which can be taken to limit damage from such storms.

Copies are available on request to the above address.

Useful Training Aids!

Charts on Aircraft Fire Fighting and Rescue Procedures

NFPA Nos. 403 — 1A and 1B (rescue)
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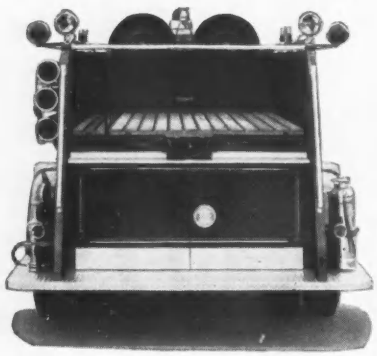
When you and the other officials of your town purchase a Darley Champion Fire Apparatus you are giving your community the best fire protection money can buy, and your taxpayers will like the savings.

Because we make both Fire Pumps and Fire Apparatus, we can and do give you everything of the best and save you money too.



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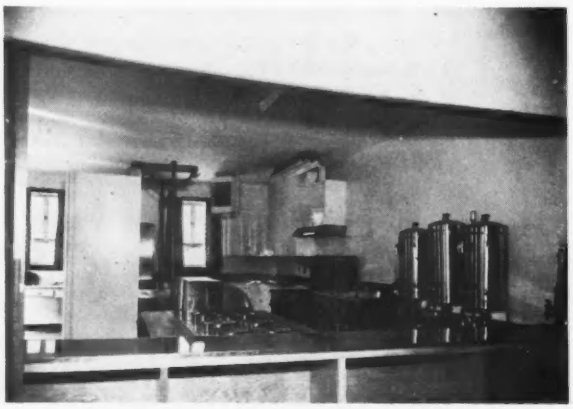

(*Right*) Kitchen facilities can serve 250 persons. This is adjacent to the large meeting room. (See page 23.)

Fort Washington Fire Company No. 1

(*Continued from page 23*)

"Shall the debt of Upper Dublin Township, Montgomery County, Pennsylvania, be increased in the sum of $100,000 dollars for the purpose of providing funds for and towards the construction and equipment of a new fire house?"

The voters passed the ballot and the New Building Committee proceeded on the expansion program.

THE new fire station which resulted was carefully planned to meet the fire company's present and future needs. The 65 by 65 ft. engine room has doors measuring 14 feet wide and 12 feet high. The floor is 6-inch double reinforced, grey colored concrete. Walls of the engine room are surfaced with tile block to a height of 9 feet and to window height of the office, workshop, and boiler room, which is in the rear of the engine room.

The station has a 45 by 59 ft. meeting room designed to seat 300 people or to serve 250 persons at a dinner or other public gathering. There is also an excellent kitchen furnished with the latest in kitchen equipment to provide service for 250 people.

An unusual installation in this new fire stations is an electronic fire detection system which operates the siren if fire is detected within the building. Back in 1919, the original fire house of the Fort Washington Company was badly damaged by fire, a fact which probably led to the installation of such a detection system.

Apparatus for Fort Washington Fire Company No. 1 consists of a 1951 Mack equipped with a 750 gpm Hale pump, a 350 gallon water tank, and carrying 2,600 feet of 2½-inch hose and 2 booster reels each with 250 feet of hose. There is also a 750 gpm Waterous pump mounted on a 1953 GMC chassis, carrying a 550 gallon tank and 400 feet of 1½-inch hose, 200 feet of 2½-inch hose, two 200 foot booster reels, a smoke ejector, a Scott "air-pack," and a deluge gun. Also in service is a 1947 Ford truck with a 350 gpm front mounted pump, a 300 gallon water tank, 300 feet of 2½-inch hose, 400 feet of 1½-inch hose, two 250 foot booster reels, 8 back-pack pumps, two 5 gallon foam proportioners, a 5 gallon wet water tank, a 1,500 Watt portable

generator, 4 floodlights, 2 Scott "air-packs," and 2 MSA cannister masks. A 1948 International truck with a walk-in type body is now being converted to a combination rescue truck and fire police unit.

Each piece of apparatus in the company is equipped with two-way FM radio. The base radio station is located in the office of Fire House No. 1. Future planning includes a remote control radio unit in the Upper Dublin Township Police Station.

Original organization of this volunteer fire company took place on January 20, 1908, with 33 charter members. This group proceeded to raise funds for a hand-drawn hose cart by sponsoring picnics, smokers, and seeking donations. One of the donations was a steel tire donated by the Midvale Steel Corporation. This was used as an "alarm" and is still kept at the fire station. A year later the young company obtained twelve fire extinguishers; and in 1910, Frank Weber was elected as the first fire chief.

In 1914 the Fort Washington Fire Company No. 1 accepted delivery of an automobile which was equipped with chemical tanks and hose. This unit was purchased at the cost of $1,200. In 1915 the fire company received another piece of chemical apparatus, and in the same year the first Ladies' Auxiliary Unit became organized. The present auxiliary was organized in 1939 with 50 members.

THE present organization of the Fort Washington Fire Company also includes a Fire Police Unit consisting of eight men headed by Captain George Fishel. Other officers of the volunteer fire company include President, Richard Furlong; Vice-President, George Painter; Treasurer, Robert S. Miller; Financial Secretary, Charles Bender; Secretary, Walter Neithercott; Chief, George Haggar; Assistant Chiefs, Walter Coombs, Clarence Roberts, and George Illingworth; and Chief Engineer, Arthur Haggar. Various social and business activities of the volunteer fire company are directed by a seven-man Board of Directors elected for three-year terms. There is also an Active Workers' Club, headed by Charles Bender, which meets the first Monday of each month. This organization consists of 40 men whose principal purpose is to plan fund raising.

The Fort Washington Fire Company achieved the second place award among Pennsylvania entries in the NFPA Fire Prevention Week Contest for 1955. Top winner in the state was Philadelphia (see February 1956 issue of FIREMEN magazine). Mr. T. Seddon Duke, President, Star Sprinkler Company, Philadelphia, Pennsylvania, who this year retired as President of NFPA (see page 10) presented the award to the fire company during the dedication ceremonies on May 18.

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Since its introduction just a few months ago — Porto-Rak has been enthusiastically received. Saves valuable space. Holds 1,800 ft. of 2½" hose — proportionately more of 1½" — in an 8-ft. space (when loading table is detached). Roll it right up to the truck for complete hose reload — out of the way when not in use. Equipped with locking fiber wheeled casters.

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The patented, electrically operated Circul-Air hose dryer circulates prewarmed fresh air through loosely coiled hose at the rate of 5 to 6 air changes per minute. Saves floor space, hard work and lengthens hose life. No other drying method is so fast — so economical — so easy to use. Circul-Air is the preferred drying method in over 4,000 leading Fire Departments.

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WASHES — RINSES — DRAINS HOSE

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We can supply everything the fireman needs for his personal equipment. Write for Catalog 350.

CAIRNS & BRO., Inc. — Allwood, Clifton, N. J.

SINCE 1836

Fire Safety Film by Disney

THE fine artistry of Walt Disney has been applied to a new 16 mm., sound, full animation and Technicolor film dealing with fire safety for children. Titled "I'm No Fool with Fire," the film runs 8 minutes and features Jiminy Cricket as an engaging master of ceremonies and teacher.

It was shown during the recent NFPA Annual Meeting in Boston and appears to be a good medium of instruction for children in the grade schools. It is available under a special long-term lease plan to all educational film libraries and industrial organizations as well as fire departments.

Full information may be obtained by writing to: 16mm. Division, Walt Disney Productions, Burbank, California. Fire departments in the New England or Eastern Seaboard States should write to: Walt Disney Productions, 16mm. Division, 477 Madison Avenue, New York 22, N.Y.

Fire Prevention Week Contest

ENTRY forms for this year's Fire Prevention Week Contest are now being prepared for distribution. Any fire department of a municipality, an industrial organization, or a governmental or military installation is eligible to compete in the Contest. Closing date for submission of complete entries is November 30, 1956.

Full information and entry blanks can be obtained by writing to Robert W. Schuette, Manager, NFPA Public Relations Department, 60 Batterymarch Street, Boston 10, Massachusetts.

More Fire School Dates

Michigan: The Alert Firemen's Association will sponsor the 3rd Annual Fire Training School for Volunteers at Lansing, September 15–16 and 22nd. Lieut. Arthur Foster of the Lansing fire department will again be chief instructor with other instructors from volunteer firemen's ranks. Chief Clayton Quenby of the Holt, Michigan, fire department will be general chairman. For further information write to Archie Burghdoff, 3289 Eaton Rapids Road, Lansing, Michigan, who is secretary.

Washington: The Annual Conference and Fire School is scheduled to be held in Everett, July 18–21. It is sponsored by the Washington State Firemen's Association, the Washington State Association of Fire Chiefs, and Washington Fire District Commissioners.

Fire Problems Occasioned by Aircraft

(*Continued from page 26*)

drants or static suction source, or whether he must wait for tankers to arrive to replenish the booster tanks. In many situations he may need the hose and pumps for a long lay-out or pumper relay but this may be futile as far as life safety is concerned, unless the fire can be held in check. Where the fire department has additional alarm companies within a short running time, the first alarm response may be devoted to a holding operation.

Obviously, while the airplane crash fire may involve many Class A (ordinary) combustibles, the Class B (flammable liquids) fire hazard is acute. Every modern fire company is trained and equipped to handle flammable liquids fires, but not always are the first alarm companies equipped to handle a flammable liquid spill fire of this magnitude. Frequently, initial reliance must be placed upon water in the form of fog both to form a protective curtain as well as to drive heat away from the plane and exposures. Solid streams seldom provide adequate coverage for this type of fire although, if the fog lines cannot initially get within range, the spray and force from a solid stream at good pressure and volume can be mighty effective.

Obviously, the extinguishing agent needed for a major flammable liquid fire, especially one involving large quantities of gasoline, is plenty of foam. Some departments are fortunate in having built-in foam proportioners on their pumpers with foam liquid tanks. Foam not only does a better extinguishing job but it blankets any spilled flammable liquid, helping to prevent a major flash fire if the liquid has not yet ignited and greatly reducing heat if the fuel is already ignited. In addition, foam is of great insulating value when applied on a plane fuselage. It does not run off and evaporate quickly as does water. It is not as readily carried away by the thermal updrafts as is water fog. Foam is also an excellent insulating agent with which to cover exposed buildings, particularly large windows which, if broken by heat, would permit fire quickly to extend into nearby structures. Where the first alarm companies do not carry foam equipment this should be immediately summoned. Where foam proportioners are lacking on pumpers a reasonably satisfactory foam can be made by pouring foam liquid into the top of the booster tank and discharging through a 1½-inch fog nozzle. While the liquid cannot be accurately proportioned in this manner the results are much better than plain water fog on low flash point liquid fires.

U. S. Air Force fire fighters practice attack with foam applied through hand lines and carbon dioxide (CO_2) applied from boom of crash truck. (*Defense Department Photo.*)

Excellent "unstable" foam can be made by using a wetting agent where facilities are provided for proportioning the liquid into the hose lines and special attachments are provided for the nozzles.

Of course, dry chemical and carbon dioxide are also good extinguishing agents for Class B fires if sufficient quantities are available.

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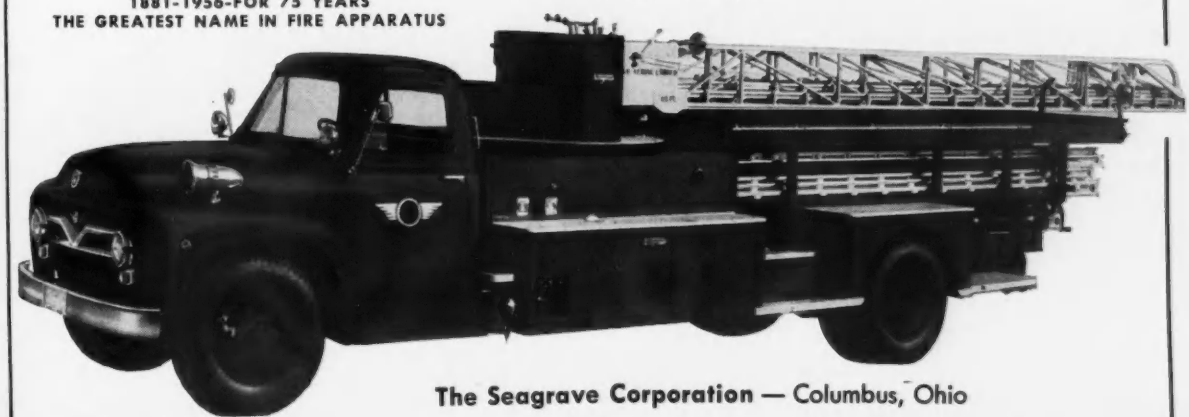
1881-1956-FOR 75 YEARS
THE GREATEST NAME IN FIRE APPARATUS

COMMERCIAL AERIAL TRUCK

The Seagrave Commercial Aerial makes it possible for smaller cities and volunteer and industrial fire departments to have an all steel Seagrave Built Aerial Ladder at economical price.



The Seagrave Corporation — Columbus, Ohio

Useful Fuel Dispenser

RECENTLY, the Los Angeles County, California Fire Department accepted delivery of this new skid unit fuel dispenser. According to Chief Keith E. Klinger, it was designed to County Fire Department specifications. Primarily, it is intended for use during the severe watershed firefighting problems in that county, but Chief Klinger states that it will be placed in service wherever large quantities of fuel are needed for the County's fire fighting apparatus.

The unit carries 420 gallons of gasoline and 230 gallons of diesel fuel. The gasoline pump is electrically operated, and this pump and the diesel pump are mounted with large-faced meters for quick, easy reading. There are two self-winding hose reels, each having 50 feet of hose equipped with automatic shut-off nozzles. There are also two 20-gallon oil tanks with dispensing pump. When empty, the weight of the entire dispensing unit is 2,300 pounds. It can be installed on flat bed trucks of proper size simply by attaching four bolts to the truck bed. Chief Klinger emphasizes that this dispenser has all the safety features recommended for tank trucks which haul flammable liquids.

Correction Notice

ON PAGE 26 of the May issue of FIREMEN a picture showed twelve prominent members of the fire service who participated in the recent Fire Department Instructors' Conference at Memphis, Tennessee. In the photo, the second man from the right was identified as Albert Peterson, Fire Marshal, Minneapolis, Minnesota.

We owe Marshal Peterson an apology. His correct title and address is Chief Fire Marshal Albert H. Peterson, Chicago Fire Department, Chicago, Illinois.

Occupancy Fire Record

ANOTHER in the series of occupancy fire records published by the NFPA Fire Record Department is now available. Titled "Furniture Factories" this 12-page, 8½ x 11 in. bulletin describes fire experience in factories which produced wood and metal furniture products. Useful tables in the rear of the bulletin describe where fires started, known causes of fires in such occupancies, factories contributing to damage in 150 furniture factories, and sprinkler performance. This fire record also lists typical NFPA fire protection standards which are applicable to furniture factories.

Copies may be obtained for 50 cents each with generous discounts allowed for quantity purchases. Write to NFPA and ask for FR 56-3.

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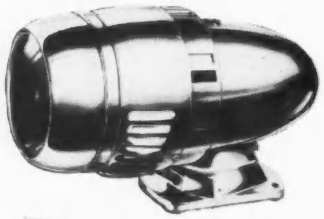
The C6, same siren, the leader in its field with a $55.00 PROPELLO Ray light sells for $140.00 only $15.00 more



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Fire Protection Engineering Course

THE College of Engineering of the University of Maryland has just announced a new four-year curriculum in Fire Protection leading to the degree of Bachelor of Science. The course will be offered starting with the Fall semester, September, 1956, on the University of Maryland campus at College Park.

The Fire Protection program is planned for young men who desire to make their career that of fire protection and prevention and to devote their lives to the public interest in this important field.

The curriculum is designed to emphasize the scientific and technical bases of fire prevention, its humanitarian aspects, and the development of the individual.

The first two years of the curriculum are practically identical with the freshman and sophomore years in the College of Engineering; also, the entrance requirements are the same as for that college. In addition to the basic and technical subjects required throughout the four years, there are courses in liberal arts such as American and English Literature, History of American Civilization, Public Speaking, Sociology and Government. In the senior year, provision has been made for nine credit hours of elective courses which the student may select from the fields of Industrial Education, Sociology, Psychology, Business Administration, Public Relations, Philosophy and Art.

The Fire Protection courses will be taught in connection with the extensive facilities of the Fire Service Extension Department, which has an excellent automatic sprinkler and fire protection laboratory. The theoretical and laboratory work will be supplemented by field problems and trips to industrial and other fire protection installations.

Further information with respect to admission requirements to the College of Engineering and to enrollment for the new Fire Protection Curriculum should apply to: Director of Admissions, University of Maryland, College Park, Maryland.

Do you have a subscription to FIREMEN for your fire station library?

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With Amazing Performance

HALE Portable Pumping Units

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FZZ	60 100	90 70
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These 3 pumping "Workhorses" provide amazing volumes and pressures for efficiently fighting a great variety of fires. All three units are conveniently portable by two men; can be easily mounted or carried on any type of apparatus for fighting fires while in motion from booster tank; often used to pump from inaccessible water source into major pumper, or to fight fires direct.

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Deputy Chief Halligan has designed a new plaster hook. It is very effective on TIN — WIRE LATH — 3-PLY VENEER — DOOR FRAMES, etc. IT IS PRICED LOWER THAN ANY COMPARABLE HOOK. TEST TRY SOME.

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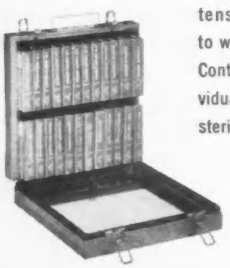
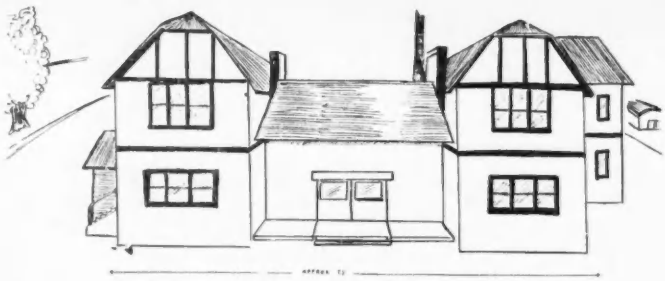




— FRONT ELEVATION —
OHIO NATIONAL GUARD ARMORY - CINCINNATI

SKETCHING THE FIREGROUND

FROM time to time the Cincinnati, Ohio, Fire Department headed by Chief Barney J. Houston sends reports to the NFPA Fire Record Department accompanied by detailed sketches of fireground operations. Sketches from one of these interesting reports are shown on these pages.

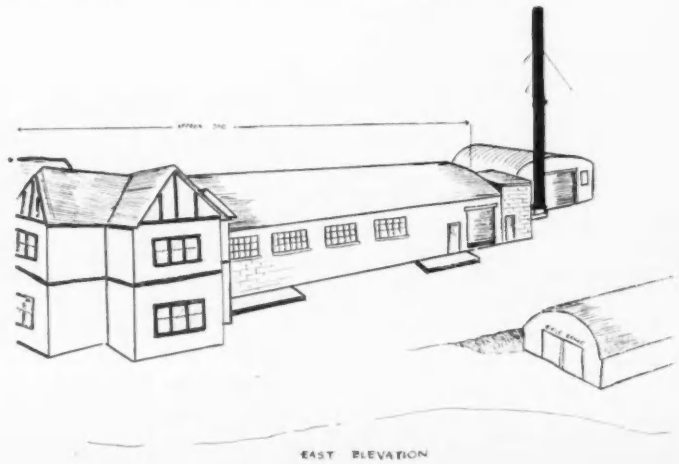
At 5:27 in the morning of April 28th, the Ohio National Guard Military Armory in Cincinnati became involved by fire. This was an unsprinklered one- and two-story frame and concrete block structure with wood floors, wood roof framing, and built-up roof covering. It measured approximately 200 feet long, 70 feet wide, and 30 feet high with approximately 1,500 square feet of ground floor area. The fire was discovered by the caretaker who lived on the property and who telephoned the first alarm. It was estimated that the fire had burned some four or five hours before discovery and it was presumed to have started in the recreation room.

Multiple alarm response included 12 engine companies, 3 ladder companies, a rescue company, and 3 special units. Fire fighters used fifteen 1½-inch lines and twenty 2½-inch lines, plus four booster lines before control was established. Some 54 salvage covers were used in the operations during and after the fire.

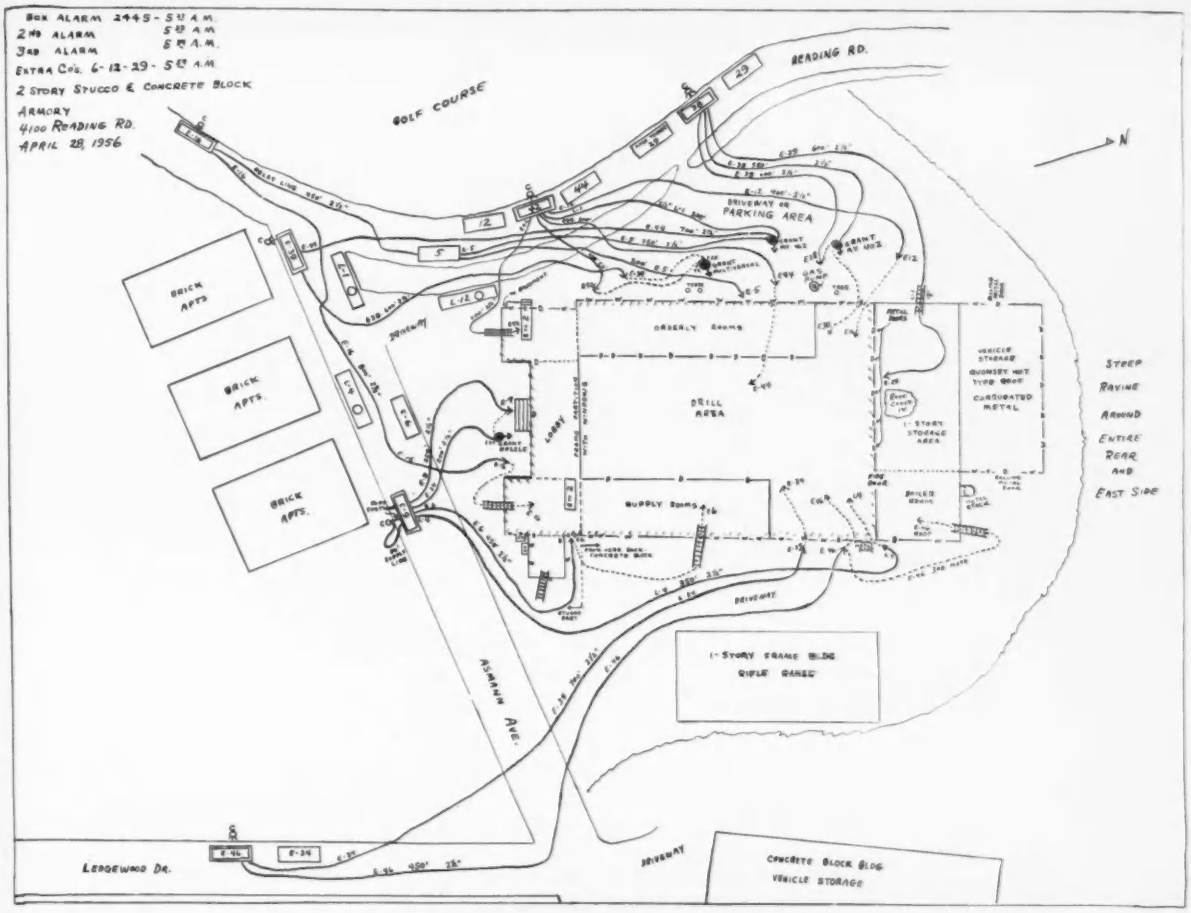
Since the Armory consisted of a large undivided area exposed to the frame construction in the front part of the building, considerable fire spread developed before effective attack could be made.

Responding fire fighters had good water supply and hydrant spacing since there were a number of 6-inch cross connected mains in the neighborhood. Hydrant pressures ranged from 114 to 167 pounds static. Despite this well-planned attack, the damage to the building was estimated at $41,000 with considerable additional fire damage caused to the contents.

The sketch on the opposite page shows the location of apparatus and heavy stream equipment and the directions in which fire fighters advanced hand lines.



EAST ELEVATION



Placement of Apparatus for Armory Fire

Cincinnati fire fighters can conduct useful "post-mortems" of fireground action with sketches such as this. It shows the positions of each fire company and how the various hose streams were directed during fire fighting operations. Such accurate plotting of fireground action permits each fire officer and fire fighter to understand more fully the reasons why his company took its particular position with respect to the overall operations. Readers of FIREMEN interested in preparing such fireground sketches for training and instructional purposes within their fire departments are referred to the chapter on standard plan symbols in the 11th edition of the NFPA Handbook of Fire Protection, available from NFPA Publications Department.

SEAGRAVE

1881-1956-FOR 75 YEARS
THE GREATEST NAME IN FIRE APPARATUS

STANDARD PUMPING ENGINE

Seagrave Built V-12 Engines — Seagrave Built All Bronze Centrifugal Pumps — Seagrave Built All Steel Bodies — Seagrave Built Safety Frames — Seagrave Built Ladders... and other principal parts designed and built by Seagrave.

The Seagrave Corporation — Columbus, Ohio

NIELSEN-RIONDA

Introduce their amazing new metal.

STA-BRITE

The wonder metal! Looks like 14K gold. It will polish to a lifetime brilliancy. The entire badge body throughout is made of STA-BRITE.

PLUS—all the advantages of superior durability and added beauty of the EXCLUSIVE NIELSEN-RIONDA solid flat back.
PLUS—10 year guaranteed silver fused coat and cap attachments, center emblems and numbers.

Assures you of the best badge value.

Write for free 32-page catalog illustrating badges available in the new STA-BRITE as well as all standard finishes.

NIELSEN • RIONDA INC.
40 JOHN ST., NEW YORK 38, N. Y.

Training officers who attended the Third Annual Fire Service Instructors' Conference in Fresno, California.

Fire Instructors' Conference in Fresno

Final stages of fire extinguishment of one of three buildings burned during the conference. Water fog, straight streams and dry chemical were used during these training sessions, and temperatures and time required were recorded.

THE Third Annual Fire Service Instructors' Conference in Fresno, California, brought attendance from 121 training officers representing municipal, industrial, and county fire departments and the California Division of Forestry. The Fresno Fire Department, headed by Chief Gale B. Coger, served as host for the conference.

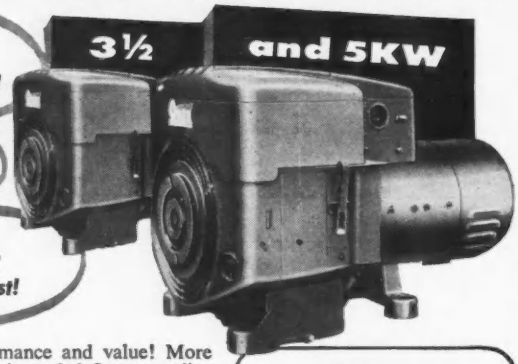
The conference was opened on May 21 by Thomas S. Ward, Supervisor of Fire Training, Bureau of Industrial Education, California State Department of Education. Classes included basic and advanced instructor training and one class in organization for instruction. In addition, three buildings were burned to provide practice in fire extinguishment with high and low pressure water fogs, spray streams, straight streams, and dry powder. Measures were made of temperatures within the buildings and the amounts of water used for extinguishment.

Arrangements for the fire tests were made by the Fresno Fire Department, the Northcentral Fire Protection District, the Midvalley Fire District, and Instructors of Fire Training Richard W. Nevens, Ward B. Ensley, Clyde A. Pope. Apparatus and equipment were furnished by the Fresno Fire Department, Midvalley Fire District, Northcentral Fire Protection District, Capitol Fire Equipment Company, California Division of Forestry, Tidewater Associated Oil Company, and the California State Office of Civil Defense.

New ONAN CCK Electric Plants

MORE OUTPUT per pound of weight!
MORE OUTPUT per gallon of fuel!
MORE OUTPUT per dollar cost!

3½ and 5KW



Way ahead in performance and value! More powerful, two-cylinder, air cooled Onan gasoline engines of 4-cycle, horizontally-opposed design give smooth, quieter, effortless performance. Short stroke and moderate speed cut engine wear, give longer life. Quality features include rotating Stellite-faced exhaust valves, solid Stellite valve seat inserts, full pressure lubrication. Onan's exclusive Vacu-Flo cooling system available for difficult or "buried" installations.

Completely Onan-built, with Onan gasoline engines direct-connected to Onan all-climate generators in compact, rugged units. Available in stationary, portable and standby models with a wide range of accessories.

PORTABLE MODELS
Available with carrying frames or 2-wheel dollies. Easily portable. Other Onan portable models: 500 to 10,000 watts.

Write for folder on all CCK models

Onan ELECTRIC PLANTS

D. W. ONAN & SONS INC.

6 University Avenue Southeast, Minneapolis 14, Minnesota

Letter to FIREMEN

Dear Warren:

I have just been reading the June issue of FIREMEN and on page 32 I noted a little article about invalid markers as a community project for fire departments.

It may interest you to know that in a new forthcoming edition of our publication "Tested Activities for Fire Prevention Committees" (which is about ready to go to press) the following item will appear:

"No. 26 Invalid Markers: This idea can be a life saver and a project that is sure to incur good will for the fire department or whoever sponsors it.

"Prepare adhesive backed markers indicating that the home contains an invalid incapable of getting out should fire ensue in the home, same to be attached to the front door glass. If these are printed in luminescent ink, it helps.

"Arrange for distribution by the fire department (when making home inspections is a good time) or use welfare groups, veterans groups, scouts and PTA's. Put a second sticker on the door of the invalid's room inside. This has a tie-in with Civilian Defense if the fire department will register all invalids in the city thus contacted and labeled. Publicize this service periodically so newcomers to the city will use it.

"Flint, Michigan made up a red fluorescent sticker to be placed on children's bedroom windows so firemen could make quick rescues. Silver Springs, Maryland promoted 'I' markers to identify homes where invalids were resident."

To me this appears one of the most valuable contributions which a fire department could make to a community and I am only too happy to see you give it a plug in your magazine. I hope you get a lot of response to it.

Sincerely,

Dale K. Auck
Director, Fire Protection Division
Accident and Fire Prevention Department
Federation of Mutual Fire Insurance Companies

SALES TERRITORIES OPEN

Several choice territories are still available to qualified representatives to handle sales of Fire Trucks, Tankers, Emergency Cars, etc., manufactured by:

Sharpsville Steel Fabricators, Inc.
Sharpsville, Penna.

MIDWESTERN
Safety Clothing for FIREMEN

The Original STRIPED SAFETY COAT

★ New Yellow Rubber Stripes!
★ Maximum Visibility!
★ Maximum Durability!
★ Exclusive Safety Features!

YOU deserve the BEST PROTECTION OBTAINABLE for your hazardous work of protecting life and property against fire. The Mackinaw Safety Coat with new yellow stripes is the answer! Highly visible stripes are rubberized as part of the material . . . not painted, glued or sewed on. There is no substitute for the superior quality, design, fabric texture and safety features you get by specifying MIDWESTERN!

QUALITY UNEXCELLED

For complete information on our full line of safety clothing for firemen, see your Midwestern dealer. A letter to the factory will also bring you literature and materials for your inspection.

MIDWESTERN SAFETY MFG. CO. Mackinaw, Illinois
Manufacturers of the Famous **MACKINAW Safety Coats**

POWHATAN
Improved Industrial Fog Nozzle

No. 250
1½" size
Satin Finish

- Reduces Water Damage
- Delivers a Protective Water Curtain
- Finger Tips Operation
- Straight Stream or Wide Range of Fog

Economically Priced
Scientifically Machined

Powhatan — since 1892 in the same location — has long been one of the largest producers of Industrial Fire Protection Items. The new No. 250 Industrial Fog Nozzle continues our high standard of quality.

POWHATAN BRASS and IRON WORKS
RANSON, WEST VIRGINIA
Phones 93 & 94 Charles Town, West Virginia
Established 1892

Fire Prevention Week Poster

This colorful 11 by 17-in. poster has been prepared by NFPA for Fire Prevention Week, which, this year, will be observed October 7 to 13.

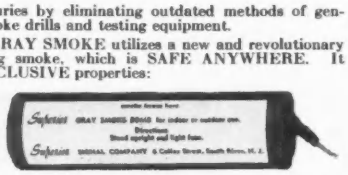
Since the theme for the Week will be "Fire Safety for Children," the illustrations on this year's poster were selected as expressing fire safety in terms of child interest. Poster art is based upon an idea which won top prize in a special FP Week poster contest conducted by the Providence, Rhode Island Chamber of Commerce among students of the Rhode Island School of Design. (In the actual poster the girl's dress is bright blue.)

Samples of other materials prepared for the Week will be mailed to all NFPA Fire Department Members with the next issue of NFPA *Fire News*.

Avoid training injuries by eliminating outdated methods of generating smoke for smoke drills and testing equipment.

The SUPERIOR GRAY SMOKE utilizes a new and revolutionary method of generating smoke, which is SAFE ANYWHERE. It has the following EXCLUSIVE properties:

NON-TOXIC . . .
LEAVES NO RESIDUE . . .
CONTAINS NO EXPLOSIVES
(may be shipped by mail)



The Superior Gray Smoke Bomb (illustrated) burns for 2-3 minutes generating 25,000 cubic feet of smoke. **$7.30 per dozen.**

The Superior Five Minute Smoke Bomb burns for five minutes generating 100,000 cubic feet of gray smoke. **$2.00 each.**

The Superior Smoke Grenade burns for 3 minutes generating a terrific 130,000 cubic feet of smoke. Has built in pull wire ignitor. Unconditionally guaranteed for FIVE YEARS. **$3.00 each.**

All Superior products are guaranteed. Prices are f.o.b. factory.
Order from your regular fire equipment dealer or write to:

SUPERIOR SIGNAL COMPANY, INC.
P. O. Box 349 **South River, N. J.**

Photo by Mike Ripsky, Naperville

On Press Releases

RECENTLY, the Naperville, Illinois, Fire Department prepared this colorful fire prevention exhibit for a "Home and Auto" show in that community. The booth contained various types of fire extinguishers and displayed fire prevention literature, posters and signs which the fire department made available to local merchants and industrial firms. Uniformed firemen attended the exhibit during the show to demonstrate operation of the extinguishers and to explain the fire prevention publications.

A unique feature of the exhibit was the chart (center background) which showed the response of school children to evacuation drills or fire drills. The chart listed the number of students in the grade school, high school and college in Naperville, listed the times for evacuation of the classrooms and school buildings, and showed the ratings given by the fire department during each fire or evacuation drill. The firefighters on duty distributed 200 home inspection blanks, 300 "Sparky" coloring sheets, 100 stickers and many posters to the persons who visited the booth. Other firefighters toured the building, served as first aid men and helped to control the crowd.

Perhaps the most significant aspect of this news item is the method used by the Naperville Fire Department to notify FIREMEN magazine. Lieut. Paul Boecker of the Department sent a brief letter to NFPA which referred to an accompanying press release and photo. The letterhead listed the headquarters and office telephone number of the department together with the fire and emergency telephone number. The name and address of the department is in the center of the letterhead, and at the left are the words "Division of Fire Prevention and Public Relations."

The release which accompanied the picture had the words "PRESS RELEASE" in red in the upper left-hand corner, and in the upper right the words "From the Naperville Fire Department, Naperville, Illinois." The 8½ x 11 inch page had a brief story explaining the purpose and features of the fire prevention display and described the activities mentioned above. Included was the all-important credit line to the photographer who took the picture. The bottom of the release featured a single line in red type "Yours for Better and More Efficient Fire Fighting."

Simplicity and neatness of news releases are important to any editor of a fire journal, newspaper, radio or television station, or magazine of general circulation. Many progressive fire departments use methods similar to Naperville's in releasing news items. Such well-reported stories catch the attention of editors and show that the fire department is using a professional approach to winning public approval.

THE NEW M·S·A AIR-MASK

. . . available with AIR or OXYGEN

Improved design, and the selective use of materials to fully meet service conditions put the new M.S.A. Air-Mask in a class by itself.

This unit, designed to bring maximum protection and comfort to users in unbreathable atmospheres, supplies air or oxygen in exact accordance with breathing needs. During exhalation, the flow ceases—an economy measure that greatly lengthens service life.

Here are a few of the construction details—

. . . a small attractive demand regulator.

. . . large, easy-operating, all metal handwheels—longer wear.

. . . large, well-defined figures on pressure gauge for easy reading.

. . . the high pressure hose is made of wire-inserted neoprene for increased wear.

. . . the redesigned cylinder valve connects directly to the cylinder and the improved working parts of the valve provide greater serviceability and less maintenance.

. . . the compact cylinder frame fits close to the body.

. . . the nylon harness is easily adjusted and provides maximum strength. It is highly chemical and water-resistant.

. . . the new color scheme is an attractive dark green and yellow. This striking appearance makes it easier to spot men in working areas.

Write today for complete details on this new M.S.A. Air-Mask . . . you'll be taking a step forward in bringing greater efficiency, safety to your fire-fighting operations.

SAFETY EQUIPMENT HEADQUARTERS

Call the M.S.A. man on your every safety problem . . . his job is to help you

MINE SAFETY APPLIANCES COMPANY

201 North Braddock Avenue, Pittsburgh 8, Pa.

At Your Service: 76 Branch Offices in the United States

MINE SAFETY APPLIANCES CO. OF CANADA, LTD.

Toronto, Montreal, Calgary, Edmonton, Winnipeg, Vancouver, Sydney, N.S.

Representatives in Principal Cities in Mexico, Central and South America

Cable Address: "MINSAF" Pittsburgh

YESTERDAY... A Total Loss!

1943 . . . A midwestern industrial landmark, which at the turn of the century was the nation's largest tanning center was destroyed by fire with a $300,000 loss. Huge stocks of lumber, paints, oils and furniture were stored in the building. (Int. News Photo)

TODAY...

FIRES ARE FOUGHT BY ATTACK...NOT DEFENSE!

The Man with the Scott AIR-PAK

YOURS IS A **FIRE ATTACK** DEPARTMENT IF YOU HAVE SCOTT AIR-PAKS ON EVERY FIRE TRUCK

IS IN FAST FOR *FIRE ATTACK!*

A major requirement for *FIRE ATTACK* is complete breathing protection. That's why Scott Air-Paks are *FIRE ATTACK* equipment. To get in fast, through thick smoke or hazardous fumes calls for experienced firefighters and Scott Air-Paks.

Your men breathing cool, fresh air will save more lives and reduce fire losses to a minimum. Take steps now to make yours a *FIRE ATTACK* Department.
Write us for complete information.

VISION UNLIMITED

New Scottoramic Face Mask now available for all Scott equipment, (standard on most models), and for replacement on your present breathing apparatus.

SINCE 1932 Scott FOR SAFETY - FOR SERVICE!

SAFETY EQUIPMENT DIVISION

SCOTT AVIATION CORP.

236 ERIE STREET LANCASTER, N. Y.

Canada: Safety Supply Co., Toronto — Branches in principal cities
Export: Southern Oxygen Co., 15 West 57th Street, New York 19, N. Y.

New Text

THE Fire Protection Department of Oklahoma A. & M. College, Stillwater, Oklahoma, has issued a new edition of "Fire Apparatus Practices in Fire Service Training," compiled by Everett Hudiburg of the Oklahoma Institute of Technology, in cooperation with the Fire Service Training Association, Western Actuarial Bureau, Oklahoma State Firemen's Association and State Board for Vocational Education.

This 60-page "Red Book," selling for $1.50, brings together in one volume important and useful information regarding fire apparatus requirements and specifications, fire pumps, aerial ladder equipment, apparatus maintenance, and driver training. Copies may be obtained from the above address.

New Members in NFPA

THE following fire chiefs and fire departments recently joined the Association. Current NFPA Fire Department membership totals 2,281 departments and 26,901 men.

Arizona: Snowflake Volunteer Fire Department, Snowflake.

Georgia: Lithonia Volunteer Fire Department, Lithonia.

Illinois: Sangamon Valley Fire Protection District, Foosland; Melvin Fire Department, Melvin; Rock River Fire District, Rockford; West Frankfort Volunteer Fire Department, West Frankfort.

Maryland: Cockeysville Volunteer Fire Company, Cockeysville.

Michigan: Algonac Volunteer Fire Department, Algonac; Bancroft Fire Department, Bancroft.

Mississippi: Mount Olive Volunteer Fire Department, Mount Olive.

New Jersey: Chief Engineer William S. Holleran, Department of Public Safety, Irvington; Pattenburg Volunteer Fire Company, Pattenburg.

New York: Big Tree Volunteer Firemen's Company, Inc., Blasdell Branch, Buffalo; Castle Creek Fire Company, Inc., Castle Creek.

North Carolina: Chief Hugh W. White, Reidsville Fire Department, Reidsville; Chief E. L. Supthin, West End Rural Fire District, West End.

Ohio: Rushsylvania-Rushcreek Volunteer Fire Department, Rushsylvania.

Pennsylvania: Mount Pleasant Fire Company No. 1, Bernville; Chalfont Chemical Fire Engine Company No. 1, Chalfont; Marklesburg Volunteer Fire Company, Hesston; Middletown Fire Company No. 1, Media; Newmanstown Volunteer Fire Company, Newmanstown.

Quebec: du Pont Company of Canada, Shawinigan Falls.

YOUR FIRE SCHOOL CALENDAR

Arizona: The State Fire Training School will be held in Phoenix, October 24–26. For further information write to Batt. Chief Jake Siken, 49 South 1st St., Phoenix, Arizona.

Georgia: The Georgia State Fire College will be held in Atlanta at No. 7 Fire Station. Arson Investigators Course, July 9–10, Inspectors Course, September 3–4, and Fire Engineers Course October 8–9. For further information write to Harry Phillips, 46 Courtland Street, S.E., Atlanta 3, Georgia.

Illinois: The Southern Wisconsin and Northern Illinois Firemen's Association will conduct their Twentieth Annual Fall School on September 9 at the Savannah Ordinance Depot, Savannah, Illinois. For further information write to the Program Secretary, Kenneth Holt, Cassville, Wisconsin.

Indiana: The Twenty-third Annual Indiana State Fire School is scheduled to be held at Purdue University, September 11-14. For further information write to Norbert Lehman, Fire Instructor, Purdue University Division of Adult Education, Lafayette, Indiana.

Kansas: The 27th Annual Kansas Fire School will be held in University of Kansas, Lawrence, October 15–18. Write to Clyde A. Babb, 111 Fraser Hall, Lawrence.

Maryland: The 23rd Annual Short Course for Firemen will be held in University of Maryland, September 4–7. For further information write to Robert C. Byrus, Box 85, University of Maryland, College Park.

Missouri: The 20th Annual Central Missouri Fire Conference will be held in University of Missouri, Columbia, July 24–26. Write to Joseph I. Fetters, Room 101, Bldg. T-11, Columbia.

Nevada: Training sessions by itinerant instructors are held for the fire departments of this State. Write to F. I. Wallace, State Supervisor, Trade & Industrial Education, Carson City.

New Hampshire: The New Hampshire State Fire School, probably at Grenier Field in late September. For further information write to H. Swain, Dir. Trade & Industrial Div., Department of Education, State House, Concord.

Ohio: The 11th Annual Fire School and the 3rd Arson School are scheduled to be held at Ohio State University in Columbus, September 10–14. For further information write to Wayne C. Jenkins, Chief, Fire Prevention Bureau, Division of State Fire Marshal, Columbus 15, Ohio.

Tennessee: The Tennessee State Fire Service School will be held in Mid-Tenn. State College, Murfreesboro, August 20–24. For further information write to Homer S. Elkins, 215 Chestnut Street, Chattanooga, Tennessee.

Virginia: The Virginia State Fire School will be held in Norfolk, Sept. 10–14. For further information write to Clay A. Easterly, P.O. Box 1112, Martinsville.

West Virginia: The West Virginia State Fire School will be held in Morgantown, July 23–27. Write to R. E. Hanna, Jr., Fire Service Extension Schools, West Virginia University, Morgantown.

Wisconsin: The University of Wisconsin Fire School will be held in University of Wisconsin, Madison, August 13–15. Write to James J. Lichty, Supervisor, P.O. Box 2098, Madison 5, Wisconsin.

Chief Gannon Returns

CHIEF Wallace F. Gannon, formerly of the Muskegon, Michigan, Fire Department, has returned to the University of Michigan to take part in the Firemanship Training Program.

He joined the Muskegon Fire Department in 1918 and moved up through the ranks to the position of Battalion Chief in 1942. He took a six-months' leave of absence in 1943 to become an instructor in firemanship training at the University, and pioneered the itinerant fire instructors' program in that state.

He went back to the fire department in 1943, became Assistant Chief in 1946, and then rejoined the staff of the University of Michigan, where he remained from October, 1946 to August, 1953. During these seven years, he gave training to some 250 volunteer and paid fire departments in Michigan with 6,000 firemen participating in the training program. He then returned to the Muskegon Fire Department and served as Chief until July 1st of this year.

Chief Gannon has developed many friends in the nation's fire services and has participated in a number of fire service conferences including the Fire Department Instructors' Conference at Memphis, Tennessee.

Why not get a Subscription to . . .
FIREMEN MAGAZINE
for
Every Man in Your Fire Department?

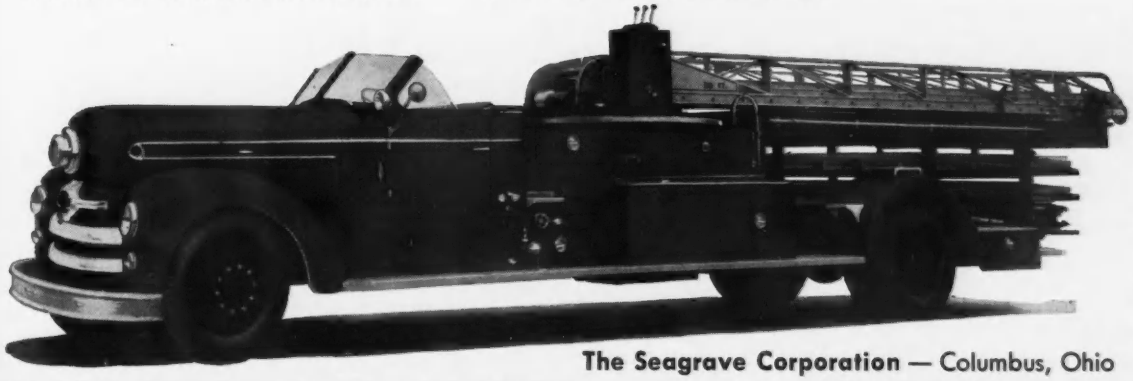
SEAGRAVE

1881-1956-FOR 75 YEARS

THE GREATEST NAME IN FIRE APPARATUS

STANDARD 4-WHEEL AERIAL

Seagrave Built V-12 Engines — Seagrave Built Welded Safety Steel Aerial Ladder — Seagrave Built 100% Hydraulic Hoist — Seagrave Built Automatic Throttle Control — Seagrave Built One-Man Controls — Seagrave Built Positive Ladder Locks — Seagrave Built Frames and Bodies . . . plus other principal parts of Seagrave design and construction.



The Seagrave Corporation — Columbus, Ohio

Every fire station should have this

"Fireground Library"

ATTACKING and EXTINGUISHING INTERIOR FIRES
OPERATING FIRE DEPARTMENT PUMPERS
FIRE FIGHTING TACTICS
Handling Hose and Ladders

Four books for only

$9.75

Including:

"Attacking and Extinguishing Interior Fires" — Cloth bound, 134 pages, illustrated. (Single copy price **$3.75**)

"Fire Fighting Tactics" — Cloth bound, 112 pages, illustrated. (Single copy price **$3.75.**)

"Operating Fire Department Pumpers" — Cloth bound, 148 pages, illustrated. (Single copy price **$3.50.**)

"Handling Hose and Ladders" — New cloth bound Civil Defense edition. 190 pages. A pictorial manual. (Single copy price **$2.50.**)

Total list price of single copies is $13.50 . . .
You get this handy book pack for just $9.75

Four important volumes on fireground action

Important principles governing effective fireground action are thoroughly explained in these four books. "Attacking and Extinguishing Interior Fires" and "Fire Fighting Tactics," (both by Lloyd Layman, former chief of the Parkersburg, West Virginia, Fire Department), present case histories and explanations of the effective use of water fog in fire fighting, and suggest operational planning procedures and tactics. "Operating Fire Department Pumpers" is important to every fire officer. It is especially useful for training pumper operators and contains new data on pumper relays and hydraulic formulae. "Handling Hose and Ladders" is the new cloth bound edition of the pictorial training manual, with an added section on handling pompier ladders.

ORDER FORM FB-7-56

NATIONAL FIRE PROTECTION ASSOCIATION
60 Batterymarch Street
Boston 10, Massachusetts

Please send me..... sets of the "Fireground Library" at $9.75 per set.

Name.....

Address.....

City..... **County**.....

State or Province..... **Country**.....

☐ **Check enclosed** ☐ **Please send bill**

Handy container for desk, drawer or glove compartment

Included in this book pack offer is a strong, attractive casing which holds the four 5½ x 8½ in. volumes securely. On your desk it provides a miniature "library" at your fingertips. In a drawer, or in the glove compartment of your car, it will protect the books from damage and still allow you to reach any volume quickly for reference.

Ideal as a gift for any fire fighter

Get this $13.50 book pack for just $9.75 today

Here's your "Task Force" for any type of fire

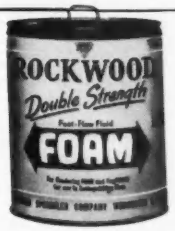
Complete team of Rockwood portable products combines speed, versatility and economy

Separately, each of these Rockwood products has its own particular advantages for fighting various types of fires. Together, they make a mobile, multi-purpose task force that delivers a whale of a lot of protection against *any* type of fire, whether it's Class A (wood, paper, rags, etc.), or Class B (flammable liquids). That includes personnel protection, too, because safety for the men who use them is an essential factor in all Rockwood fire fighting products.

Rockwood's long, practical experience and constant research bring you not only new *efficiency* but new *economy* in fire-fighting methods and equipment. It will pay you to learn more about these and many other Rockwood products. Mail the coupon today for complete information on Rockwood's specialized fire-fighting products.

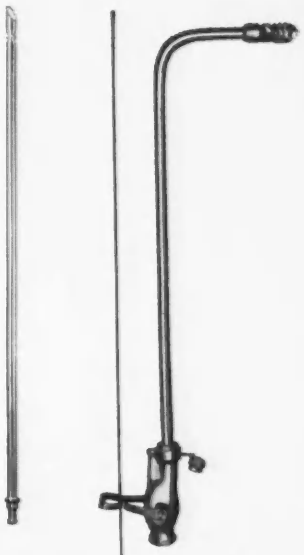
* **Type SG-60 Nozzle.** A true all-purpose nozzle that fights fire 5 ways. It discharges high velocity WaterFOG, low velocity WaterFOG (with applicator), FogFOAM, solid stream of water or solid stream of FOAM.

FOAM and "Wet" Eductor with the new FW Metering-Check Valve. Introduces Rockwood FOAM or "Wet" into hose lines, automatically proportioning correct amount of FOAM and "Wet" to water. Also usable wherever one liquid is fed into another on a fixed percentage basis.



* **Rockwood Double Strength FOAM.** Puts out fires in flammable liquids, and in ordinary combustibles, quicker, at lower cost. Three parts FOAM and 97 parts water create a tremendous heat-resistant blanket. Flows freely at —15°F.

* **Rockwood WET.** One part WET mixed with 99 parts water increases water's penetration and extinguishing action. Gives quickest results against deep seated fires. Saves time, water, manpower.



Bayonet Piercing Applicator. Has a hardened steel cutting tool attached to tip, enabling operator to pierce through partitions, into interiors, etc. Discharges low velocity WaterFOG or FogFOAM.

* **Long Extension Applicator.** Discharges low velocity WaterFOG in an umbrella pattern, smothering fire without causing turbulence to flammables. Excellent personnel protection is another advantage.

FF Extension Unit. Shown with Type SG-60 Nozzle. Discharges Rockwood FOAM in a solid stream or as FogFOAM. Wide angle makes it possible to cover large areas at one time.

**NOTE: The products shown here have all been Tested and Listed by Underwriters' Laboratories, Inc.*

ROCKWOOD SPRINKLER COMPANY

Engineers Water . . . to Cut Fire Losses

ROCKWOOD SPRINKLER COMPANY
Portable Fire Protection Division
1522 Harlow Street
Worcester 5, Mass.

Please send me your illustrated booklet on Rockwood fire-fighting products.

Name_____
Title_____
Company_____
Street_____
City_____
Zone_____ State_____

NEW FIRE EQUIPMENT, CATALOGS & BULLETINS

Audio Equipment Company, Inc., 805 Middle Neck Road, Great Neck, New York, is producing a new type of heavy-duty portable megaphone called the "Audio CHIEF." The hand-carried unit operates on dry batteries which are carried in a separate water-tight case. Full details and descriptive information may be obtained by writing to the manufacturer at the above address . . . UL and FM tested and listed stationary fire service pumps, the "Peerless" line, are described and illustrated in a new 36-page bulletin No. B-1500 just released by *Peerless Pump Division*, Food Machinery and Chemical Corp., 301 West Avenue 26, Los Angeles 31, Calif.

Norman Caplan is now manager of mobile radio products for the *Radio Division of Bendix Aviation Corp.* . . . *Pyrene-C-O-Two Corp.* announces that William E. Tromanhauser becomes vice president and general sales manager. . . . *General Electric Co.* has a new "Desk Mate" two-way radio base station cabinet, replacing the "Progress Line." . . . *The Fyr-Fyter Co.* announces the appointment of Frank R. Bridges, formerly chief engineer for Gamewell Co., to the newly created position of vice president-manufacturing of the SAFA Alarm Division, Inc. . . . UL listing for their three large stationary dry chemical fire extinguishing units, ranging in size from 500 to 2,000 pounds capacity, is announced by *Ansul Chemical Co.*, Marinette, Wisconsin. . . . For information on lightning presented in layman's language, get your copy of "Lightning, Its Behavior and What To Do About It," a 24-page presentation by H. M. Towne, formerly manager of G.E.'s lightning protection section. Copies at 15 cents each may be obtained from *United Lightning Protection Association, Inc.*, 404 Jefferson Bldg., Syracuse 2, N. Y. . . . Are your apparatus units equipped with the "Halligan Hook" for forcible entry, ventilation, opening-up and overhauling operations? Write at once to *M. A. Halligan*, 1505 Metropolitan Ave., New York 62, N. Y. . . . Harold A. Jones becomes National Sales Manager of *Motorola Communications and Electronics, Inc.*, replacing Eugene S. Goebel, now vice president for market relations.

Look into the variety of uses the American-Marsh 3XD Pump offers your department. Write for 3XD bulletin 8120 to *American-Marsh Pumps*, Battle Creek, Mich. . . . "Hi-Glo" badges, made by *V. H. Blackinton & Co., Inc.*, Attleboro Falls, Mass., are a new type of fire department uniform badges. . . . Are you equipped for emergency treatment of burns? Check on burn kits for chemical and heat burns by *E. D. Bullard Co.*, 275 8th St., San Francisco 3, Calif. . . .

Circul-Air Corp., 575 East Milwaukee St., Detroit 2, Mich., now offers "Roto-Jet" hose washer and "Porto-Rak" hose storage and loading unit in addition to its renowned electric hose dryer. . . . For top-grade tooling and materials, think about trying *Powhatan Brass* "Sensible" lug couplings. . . . *Sharpsville Steel Fabricators, Inc.*, Sharpsville, Penna., has sales territories open to qualified representatives to handle sales of their fire trucks, tankers and emergency cars. . . . The new *Wooster "Vari-A-Fog"* nozzle has several modern features of practical value for your department.

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Radio in Clifton, N. J.

WITH formal dedication of a new 3-way fire department mobile radio system, the City of Clifton, New Jersey, became the first municipality in Passaic County to have separate fire and police radio systems. The Clifton Fire Department is headed by Chief John Zanet and installation of the mobile radio units now gives each of the 14 pieces of fire apparatus a complete 3-way radio system — base-to-car, car-to-base, and car-to-car.

The base radio station is in Fire Department Headquarters at Van Houten Avenue and Broad Street, with the main dispatching unit at Fire Alarm Headquarters on Mount Prospect Street. A secondary dispatching unit is also located at Fire Headquarters.

The radio equipment was purchased by the city under the matching funds program of the Federal Civil Defense Administration. Four Civil Defense vehicles in the city are also equipped with the 3-way radio units. The equipment was manufactured by Federal Telephone and Radio Company, a division of the International Telephone and Telegraph Corporation, located at 100 Kingsland Road in Clifton.

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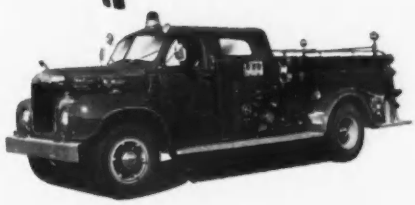

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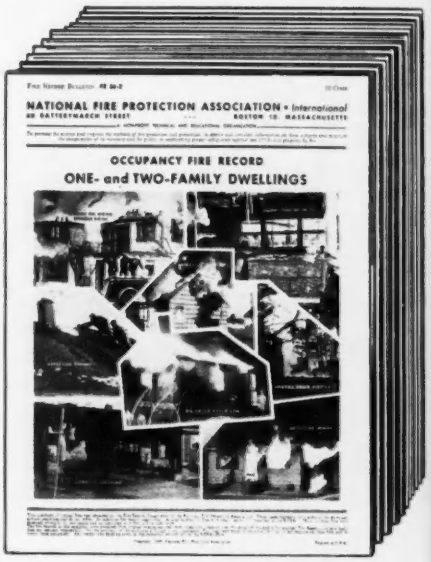

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